

**Testing the psychometric properties of a standardised  
mental health assessment tool -  
The Global Mental Health Assessment Tool/Full version  
(GMHAT/Full)**

This is a thesis submitted in accordance with the requirements of the University  
of Liverpool for the degree of Doctor in Medicine in the faculty of Health and  
Life Sciences

**Year of presentation 2013**

**Dr. Mahesh Mahabaleshwar Odiyoor**

### **Declaration I**

I declare that, except as indicated in the thesis, this work has been carried out and the thesis has been written by myself.

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Mahesh Mahabaleshwar Odiyoor

### **Declaration II**

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of Liverpool or any University or other institutions of learning.

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Mahesh Mahabaleshwar Odiyoor

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Guru Brahma, Guru Vishnu, Guru devo Maheshwara,  
Guru sakshat, param Brahma, tasmai shri guravay namah

Guru is the remover of darkness: Gu means darkness, and Ru means remover. Darkness refers to what obscures the light of awareness. Guru is the enlightenment principal that aids one in the journey to the realization of the true Self.

Guru also means a teacher. This Sanskrit shloka encapsulates the essence of my gratitude to all my teachers who have helped and guided me throughout my life.

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## ABSTRACT

### Introduction

Mental disorders are a common cause for distress and disability worldwide. However majority of sufferers of these disorders are neither diagnosed nor treated. A comprehensive assessment of mental health problems is the key to providing a high quality care.

The Global Mental Health Assessment Tool (GMHAT) has been developed to provide a good quality, user friendly, standardised clinical assessment of all aspects of mental health problems. The Global Mental Health Assessment Tool-Full version (GMHAT/Full) is developed based on comprehensive history taking methods in psychiatry. The GMHAT/Full uses the All-AGECAT algorithm to generate a diagnosis following the assessment.

This study tests the psychometric properties of the GMHAT/Full focussing on the recording of psychopathology and the All-AGECAT based diagnosis that is generated following the interview. This includes examining the test- retest and inter-rater reliability as well as the concurrent validity.

### Methods

Recruitment and sampling:

Participants for the study were identified using convenience sampling. The participants were in the age range of 18 to 65 years. They were mainly based at a psychiatric in-patient unit or in the community under the assertive outreach services. The participants gave full written consent to participate in the study.

- Test-retest reliability:

Thirty participants were interviewed twice by the author using the GMHAT/Full for the test-retest reliability study. There was a gap of 1 to 4 weeks between the two interviews. Diagnostic concordance was calculated at symptom and syndrome level by using Cohen's Kappa coefficient. The other statistical measures used included testing the Sensitivity, Specificity, Positive Predictive Value and Negative Predictive Value of the compulsory questions.

- Inter-rater reliability:

Fifteen participants were interviewed by three assessors using the Global Mental Health Assessment Tool/Full version and the interviews were video recorded for the inter-rater reliability study. The videos were then independently rated by up to 10 other clinicians. Diagnostic concordance was calculated at each syndrome level as well as on a case by case level using Cohen's Kappa coefficient.

- Validity:

Fifty participants were administered the GMHAT/Full by four assessors. The participants were also administered the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) by the author. In this study the diagnoses generated were assigned ICD-10 codes and the data was analysed in four ways

- GMHAT/Full computer diagnosis Vs SCAN computer diagnosis
- GMHAT/Full computer diagnosis Vs GMHAT/Full Clinician diagnosis
- SCAN computer diagnosis Vs SCAN clinician diagnosis
- GMHAT/Full clinician diagnosis Vs SCAN clinician diagnosis

The data was analysed descriptively following which the level of agreement in the diagnoses within the groups described above were tested. No specific statistical analyses were conducted due to the small numbers of participants and the limited spread of the diagnoses.

## Results

- Test-retest reliability:

At the symptom level the mean Kappa is 0.77. The Kappa values range from 0.51 to 1.00. The symptoms that would be expected to show variability in the time space of the two interviews showed lower Kappa agreement. The symptoms that take longer to change showed a higher kappa agreement. The agreement for the rating of past symptoms was consistently high. The overall agreement at the syndromal level was good with values ranging from 0.78 to 1.00. The mean kappa is 0.60 (ranging from 0.00 to 1.00). However due to the small numbers chance agreement will be high leading to wide confidence intervals.

- Inter-rater reliability:

The correlation between the syndromes generated and the GMHAT/Full diagnosis generated by the algorithm was good. The correlation was particularly good for conditions such as schizophrenia and major depression. It was possible to obtain a weighted Kappa on only a few syndromes due to the limited spread of syndromes across the small number of cases. Therefore the overall agreement in each case at the syndromal level was assessed following the data recoded in two different ways to see if there was any change to the overall results due to the recoding. The mean Kappa scores of the data from the recode 1 were 0.82 with individual cases varying from 0.66 to 0.96. The mean Kappa score for the data from Recode 2 was also 0.82 with individual cases varying from 0.60 to 0.99.

- Validity:

The findings from this part of the study suggest that the GMHAT/Full has a good concordance with both the clinician as well as the SCAN tool. There is also a good agreement between the syndromes generated and the diagnosis generated by the All-AGECAT algorithm of the GMHAT. The agreement was slightly lower when the GMHAT/Full computer generated diagnosis was compared with SCAN computer generated diagnosis (76%) and when GMHAT computer generated diagnosis was compared with the Clinicians' diagnosis following use of the GMHAT (78%). The agreement was slightly higher when the SCAN computer generated diagnoses was compared with the Clinicians' diagnosis following use of the SCAN (80%). The agreement was highest when the clinicians' independent diagnoses (88%) following the use of the respective tools were compared. The level of disagreement between Clinicians diagnosis and the computer generated diagnosis using GMHAT/Full and the SCAN tools were the same (20%).

## Conclusion:

The Global Mental Health Assessment Tool – full version (GMHAT/Full) is a reliable and valid tool. There were some limitations to the study due to limited resources. This led to the study being conducted in specific settings and also limited the numbers of patients recruited to the study. Further feasibility and longitudinal studies using GMHAT/Full in various clinical settings will help in establishing its value in routine clinical use.

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## **Introduction**

History of psychiatric medical knowledge goes back to ancient times. Descriptions of mental disorders and their treatment are described in texts from ancient Egypt (1), India (2, 3), China (4), Greece and Rome (5). In the Middle Ages Greek concepts were translated, analysed and integrated with religious thought by Persian, Arabic and Christian scholars (6,7). Mental illness was conceptualised as a mixture of divine and physical. It was seen as the outcome of lack of balance within the body humors often in conjunction with evil spirits or supernatural forces (6). Madness was also seen as a moral issue. It was seen as a punishment for sins or as a test of faith or character (8).

The understanding of mental illness and its diagnosis evolved over the centuries. The description of psychiatric symptoms or “descriptive psychopathology” and “psychiatric nosology” or the organisation of the symptoms into psychiatric diagnoses developed over time. Classificatory systems evolved over time with a pragmatic purpose of delineating conditions useful for the choice of treatment, prevention and prognosis. Clinical assessment instruments were developed to assess the signs and symptoms required for making a diagnosis.

This thesis details the development and provides a description of the Global Mental Health Assessment tool- Full version (GMHAT/Full), a clinical tool that can be used in routine care at all levels of mental health service delivery. A detailed description of the studies to examine the psychometric properties (reliability and validity) of the GMHAT/Full will be outlined in the thesis. This will focus on the recording of psychopathology and computer assisted GMHAT/Full diagnosis

**PART 1:**

**REVIEW OF LITERATURE**

## **Chapter 1**

### **1.0 Diagnosis and classification of mental disorders**

Psychiatric diagnosis and classification have evolved over centuries but has gone through a rapid transformation in the last century. An outline of a long view, current practices and future challenges are given in the following sections.

#### **1.1 Historical perspective**

History of psychiatric medical knowledge goes back to ancient times as discussed in the introduction. In the 18<sup>th</sup> century personalized, psychosocial and more humane approaches started being developed in the management of people with mental disorders. During this time various theories to explain and treat mental disorders developed. The idea with the most profound influence was the one promoted by a French medic called Philippe Pinel. In 1801 Pinel published the “Medico-philosophical Treatise in Mental Alienation”. In it he described the various clinical presentations he had observed, proposed a simple nosological system, examined possible aetiological factors and described the treatment that he prescribed in detail (9, 10). For Pinel insanity was a disease and its study like the rest of medicine had to be a science requiring careful observation of facts (10). Pinel’s work was continued by his pupil Esquirol who originated the descriptive clinical approach. His book ‘On mental disorders’ was another landmark publication in the history of psychiatry. The work of these individuals and their pupils made the study and treatment of mental disorders a branch of medicine.

Pinel, Esquirol and their followers concentrated on the description of observable symptoms and behaviors thus avoiding theoretical controversies. However other theories developed



during these times which were more radical. One of them was the ‘psychologically oriented theory’ where the physical body and the spiritual soul were seen as distinctly separate. The soul was seen as the source of the whole psychic life and hence insanity was a symptom of its abnormal aspect (9, 11). The other was the ‘biological theory’ where the symptoms of the mental disorder were thought to be due to a lesion in the brain or the nervous system (e.g. the degeneration theory of Morel in 1857) (9, 12). These two theories were at conflict and continued to influence the development of both psychiatric nosology as well as treatment methods.

The 19th and early 20th centuries saw an increasing knowledge base of mental disorders. A variety of conditions including hysteria, hypochondriasis, neurasthenia, phobia, obsessional and anxiety disorders were added to the psychotic and other conditions already known. This led to a profusion of proposed psychiatric nosologies each from different experts in what Zilboorg (11) called the ‘Era of Systems’. The proposing authors each brought to their classifications both wide clinical experience and a range of assumptions about what constitutes the essential features of psychiatric illness. The foremost among them was Emil Kraepelin. Using the criteria of cause, symptomatology, course and outcome he set out a monumental synthesis of the hundreds of mental disorders classified by the 19th century. He set these classifications out in a series of highly influential ‘*Psychiatrie*’ textbooks (13, 14).

Subsequent contributions by authors such as Eugen Bleuler, Karl Jaspers and Kurt Schneider helped develop this process further. Eugen Bleuler’s distinction between basic and accessory symptoms for the diagnosis of Schizophrenia represented the first step towards developing operational criteria for defining conditions in this field (15). He also replaced Emil Kraepelin’s nosological hypothesis with a pathogenetic hypothesis. According to this

hypothesis, various somatic etiologies lead to pathogenetic stages which manifest through characteristic basic symptoms. He recommended that the diagnosis be established by means of these basic symptoms (16).

Karl Jaspers' questioned both the diagnostic criteria and the methods of clinical psychiatry. He introduced a new method of study known as the 'biographical method'. Jaspers studied patients in detail, giving biographical information on the people concerned as well as providing notes on how the patients themselves felt about their symptoms. This now forms one of the mainstays of modern psychiatric and above all psychotherapeutic practice. Of particular importance, Jaspers believed that psychiatrists should diagnose symptoms (particularly of psychosis) by their form rather than by their content. Jaspers wrote his views on mental illness in a book which he published in 1913 as '*Allgemeine Psychopathologie*' ('General Psychopathology') (17, 18, 19). Kurt Schneider established a pragmatic system for assessing symptoms particularly of Schizophrenia. This was based on Karl Jaspers' distinction between disturbance of experience and disturbance of behaviour. He based his diagnostic classification purely on psychopathological evaluation of the disturbances of experiences separating them into two categories of first and second rank symptoms (20, 21).

At the same time in America the need to collect statistical information provided the initial impetus for developing a classification of mental disorders. The first official attempt was the 1840 census, which used a single category, "idiocy/insanity". The American Statistical Association identified a number of problems with this system and made an official protest to the U.S. House of Representatives. The Association of Medical Superintendents of American Institutions for the Insane was formed in 1844, changing its name in 1892 to the American Medico-Psychological Association, and in 1921 to the present American Psychiatric

Association (APA). Further revisions were made and Frederick H. Wines wrote a report called “Report on the Defective, Dependent, and Delinquent Classes of the Population of the United States, As Returned at the Tenth Census (June 1, 1880)” (published 1888). Wines used seven categories of mental illness. These categories were also adopted by the Association. The committee on statistics of the American Medico-Psychological Association together with the National Commission on Mental Hygiene (now Mental Health America) introduced a 22-item list of disorders in 1918 (22, 23).

World War II saw the focus move away from mental institutions and traditional clinical perspectives. There was a large-scale involvement of US psychiatrists in the selection, processing, assessment, and treatment of soldiers. A committee headed by psychiatrist Brigadier General William C. Menninger developed a new classification scheme called Medical 203, that was issued in 1943 as a War Department Technical Bulletin under the auspices of the Office of the Surgeon General (24). By the end of World War II, there were four major competing classification systems in the US: The American Medical Association nomenclature, the US Army classification, the US Navy classification and a system developed for use in the veterans’ administration hospitals (22). In 1949, the World Health Organization published the sixth revision of the International Statistical Classification of Diseases (ICD), which included a section on mental disorders for the first time. This provided an impetus to the APA to set up a Committee on Nomenclature and Statistics empowering it to standardize the diverse and confused usage of different documents and to develop a version specifically for use in the United States. This led to the development of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I) which was published in 1952 (25).

The challenge of improving the reliability with which mental disorders could be diagnosed however remained. Various authors such as Ash in 1949 (26) and Beck in 1962 (27) looked at psychiatric diagnosis and showed that the probability of agreement of two psychiatrists in diagnosing mental disorders in participants hardly exceeded chance. This is illustrated in a study conducted in 1970. At the time there was a higher incidence and prevalence of Schizophrenia as diagnosed by hospital clinicians in the USA than in Britain. However when a team of psychiatrists tried to make independent but relatively standardised diagnosis of a sample of participants admitted to hospitals in London and New York, they diagnosed similar proportions of people with Schizophrenia both in New York and in London. Thus the higher proportion of Schizophrenia diagnosed by the hospital doctors in New York seemed to be largely due to the differences in the way the diagnosis was made (28).

In the late 60's a group of clinicians led by Eli Robins and including Feighner, J.P., Guze, S.B., Winokur, G., Woodruff, R.A. Jr., and Muñoz, R. at the Department of Psychiatry, Washington University set about reviewing the evidence base and develop a set of diagnostic criteria. This led to the publishing in January 1972 of the "Diagnostic Criteria for use in Psychiatric Research," which proposed criteria for 14 psychiatric disorders (29, 30). The criteria were based on three principles.

- the systematic use of an operationalised criteria in making a diagnosis
- emphasis placed on the course of illness and prognosis along with the acute clinical picture in defining disorders
- the importance of basing diagnostic criteria, wherever possible, on empirical data rather than solely on clinical wisdom

The publishing of these criteria led to the development of semi structured interviews to be used by psychiatrists and led to good diagnostic inter rater reliability. Feighner's criteria

subsequently was modified and expanded in order to meet the needs of the NIMH Collaborative Depression Study. This was named the Research Diagnostic Criteria (RDC) (31).

An influential 1974 paper by Robert Spitzer and Joseph L. Fleiss questioned the reliability of the second edition of the DSM (DSM-II) (32). They found that different practitioners using the DSM-II were rarely in agreement when diagnosing patients with similar problems. In reviewing previous studies of 18 major diagnostic categories, Fleiss and Spitzer concluded that “there are no diagnostic categories for which reliability is uniformly high. Reliability appears to be only satisfactory for three categories: mental deficiency, organic brain syndrome (but not its subtypes), and alcoholism. The level of reliability is no better than fair for psychosis and schizophrenia but the level of reliability for the remaining categories are poor” (33).

In 1974, the decision to create a new revision of the DSM was made. Robert Spitzer was selected as chairman of the task force. There had been further revisions of the International Statistical Classification of Diseases (ICD) following the introduction of the mental and behavioural disorder section in 1949. The initial impetus for the decision to create a new version of the DSM was to make the DSM nomenclature consistent with the ICD. However the revision took on a far wider mandate with a goal to improve the uniformity and validity of psychiatric diagnosis. A need to standardize diagnostic practices within the US and with other countries was identified after research showed that psychiatric diagnoses differed markedly between Europe and the USA (34). The criteria from the RDC and the Feighner Criteria were utilised in the development of DSM III which was published in 1980. A key aim was to base categorization on colloquial English descriptive language rather than

assumptions of etiology. However its categorical approach assumed each particular pattern of symptoms in a category reflected a particular underlying pathology (an approach described as “neo-Kraepelinian”). The psychodynamic or physiologic view was abandoned, in favor of a regulatory or legislative model. A new “multi-axial” system attempted to yield a picture more amenable to a statistical population census, rather than just a simple diagnosis. It rapidly came into widespread international use and has been termed a revolution or transformation in psychiatry (35, 36).

The DSM and ICD developed, partly in sync, in the context of mainstream psychiatric research and theory. Debates continued and developed about the definition of mental illness. DSM IV was published in 1994 and DSM-5 in 2013. Similarly following the introduction of mental and behavioural disorders in the 6<sup>th</sup> revision of the ICD there have been 4 further revisions. The most current version the ICD-10 has been in use since 1994. The Division of Mental Health of the World Health Organization organized an international field trial in preparation for the 10th revision of the International Classification of Diseases (ICD-10). The purpose was to help evaluate the draft clinical descriptions and diagnostic guidelines that were produced to facilitate use of the chapter dealing with mental and behavioural disorders (37). These clinical guidelines were prepared in equivalent versions in most of the world's widely spoken languages.

## **1.2 The elusive definition of mental disorder**

By design, the systems of classifications described above are primarily concerned with the signs and symptoms of mental disorders, rather than the underlying causes. The general approach taken in both ICD and DSM is atheoretical with regards to aetiology or pathophysiological process. The exceptions are conditions in which the aetiology or

pathophysiological process are well established in which case they are included in the definition of the disorder. All the disorders without known aetiology are grouped together on the basis of shared clinical features.

The current list of mental disorders certainly constitutes a hodgepodge collection. Some describe short-term states, others lifelong personality. Some reflect inner misery, others bad behaviour. Some represent problems rarely or never seen in normal individuals, others are just slight accentuations of the everyday. Some reflect too little self-control, others too much. Some are quite intrinsic to the individual; others are defined against varying and changing cultural mores and stressors. Some begin in infancy, others in old age. Some affect primarily thought; others emotions, behaviours, or interpersonal relations; and there are complex combinations of all of these. Some seem more biological, others more psychological or social (38). The common themes in the definition of mental disorder are distress, disability, dyscontrol, and dysfunction (39, 40, 41), but these are very imprecise and nonspecific markers with little practical value. The descriptive approach taken in both these classification systems rely on the signs and symptoms considered to be characteristic of the disorder, their duration and the frequency of their appearance, the order of their appearance relative to other signs and symptoms, their severity and impact on social functioning (42). The definitions involve monothetic and polythetic criteria sets. In monothetic criteria sets all the items must be present to make the diagnosis whereas in polythetic sets diagnosis can be made even if a proportion of the items are met (42).

The lack of a causative or explanatory basis, however, is not specific to these systems, but rather reflects a general lack of pathophysiological understanding of psychiatric disorders. As DSM-III chief architect Robert Spitzer and DSM-IV editor Michael First outlined in 2005,

“little progress has been made toward understanding the pathophysiological processes and etiology of mental disorders. If anything, the research has shown the situation is even more complex than initially imagined, and we believe not enough is known to structure the classification of psychiatric disorders according to etiology.” (43).

This leads us to the questions “are psychiatric disorders really discrete entities?” (44) Attempts to demonstrate natural boundaries between related syndromes (mania and schizophrenia) or a common syndrome and normality (depression, anxiety, personality) by locating a "zone of rarity" between them has failed. Several other DSM/ICD disorders have been found to cluster among the relatives of individuals with schizophrenia, major depression or bipolar affective disorder, and findings of such clusters have given rise to the concepts of "schizophrenia spectrum" and “affective spectrum” disorders (45). A fundamental choice in descriptive psychopathology classification is between a categorical and a dimensional structure. Psychiatric syndromes and symptoms can be conceptualized and assessed both categorically and dimensionally. Both the DSM and the ICD systems rely extensively on a categorical approach, but also use the dimensional nature of syndromes and symptoms. If disorders are independent categories, the coexistence of other disorders within a specific disorder should be just by chance. In fact, this is not the case. Psychiatric comorbidity seems to be the rule rather than the exception (46). Mario Maj remarked that the lack of "zone of rarity" and high rates of comorbidities show that there are three possibilities (47):

- Psychopathology does not consist of discrete disease entities as conceptualized by ICD-10 and DSM-IV.
- Psychopathology does consist of discrete disease entities, but these entities are not reflected by current diagnostic categories.



- Nature of psychopathology is intrinsically heterogeneous, consisting in part of true disease entities and in part of reaction types or maladaptive response patterns. This is maladaptive response patterns. This is what Jaspers (1913) actually suggested when he distinguished between "true diseases" (such as general paresis), which have clear boundaries among themselves and with normality; "circles" (such as manic depressive insanity and schizophrenia), which have clear boundaries with normality but not among themselves; and "types" (such as neuroses and abnormal personalities), which do not have clear boundaries either among themselves or with normality.

Categorical and dimensional approaches to conceptualizing and assessing psychiatric syndromes and symptoms are complementary rather than mutually exclusive, with dimensional assessments often informing categorical treatment decisions (48). Furthermore, categorical ratings can be transformed into dimensional ones (e.g., by summing the number of diagnostic criteria met) and vice versa (e.g., by using cut points to determine whether a categorical diagnosis should be made). A categorical approach provides a clinically useful way to communicate rapidly the main features of a case, and is also valuable in particular research situations. A potential disadvantage of categorical approaches is that they may encourage reification and oversimplification of complex entities with multiple overt symptoms and underlying mechanisms. A dimensional perspective allows for a more fine-grained approach, but also has significant potential disadvantages. It is useful to employ categorical and dimensional approaches in tandem, in both clinical and research settings (48, 49)

### **1.3 Current and future challenges**

The discussions about the nature of psychiatric disorders, the difficulties in the classificatory systems and the categorical versus dimensional debate has continued to dominate the development of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) published in 2013. The DSM-5 was criticized by various authorities both before and after it was formally published. Critics argue that many DSM-5 revisions or additions lack empirical support and that inter-rater reliability is low for many disorders. Various scientists have argued that the DSM-5 forces clinicians to make distinctions that are not supported by solid evidence, distinctions that have major treatment implications (50, 51). There is also an argument that the current descriptive classification of disorders is old and tired. Fiddling needlessly with the descriptive labels will not advance science and may actually do more harm than good in its effect on clinical care (38)

On April 29, 2013, a few weeks before the publication of the DSM-5, NIMH director Thomas Insel published an article critical of the DSM methodology. He highlighted that the strength of each of the editions of DSM has been “reliability” – each edition has ensured that clinicians use the same terms in the same ways. The weakness is its lack of validity (52). In their effort to resolve their issues with the new DSM, the NIMH launched the Research Domain Criteria Project (RDoC). Strategy 1.4 of the NIMH Strategic Plan calls for the development, for research purposes, of new ways of classifying psychopathology based on dimensions of observable behavior and neurobiological measures. The Research Domain Criteria Project (RDoC), is based on four assumptions:

- A diagnostic approach based on the biology as well as the symptoms must not be constrained by the current DSM categories,

- Mental disorders are biological disorders involving brain circuits that implicate specific domains of cognition, emotion, or behavior,
- Each level of analysis needs to be understood across a dimension of function,
- Mapping the cognitive, circuit, and genetic aspects of mental disorders will yield new and better targets for treatment.

Insel stressed that the RDoC is not designed as diagnostic criteria to replace the DSM, but rather as a research framework, for future development. The effort is to define basic dimensions of functioning (such as fear circuitry or working memory) to be studied across multiple units of analysis, from genes to neural circuits to behaviors, cutting across disorders as traditionally defined. The intent is to translate rapid progress in basic neurobiological and behavioral research to an improved integrative understanding of psychopathology and the development of new and/or optimally matched treatments for mental disorders (53).

Descriptive psychiatry has developed significantly following Pinel's creation of the first modern psychiatric classification system. His work was born of the Enlightenment belief that some underlying order could be imposed even on the obvious irrationality of mental illness. However the challenges faced by Pinel when he started still remains. The challenges are twofold. One is to improve the reliability of psychiatric diagnosis and the second to establish the validity. Though we are still far away from establishing the validity of mental disorders, the reliability seems to have greatly been helped by the development of the classificatory systems and by the accompanying standardised assessment tools which are discussed in more detail in the next chapter.

## **Chapter 2**

### **2.0 Standardised assessment tools in the diagnosis of mental disorders**

Mental disorders are prevalent in all communities. Around 450 million people worldwide are affected by mental, neurological or behavioural problems at any one time (54). One in four participants visiting a health service has at least one mental, neurological or behavioural problem (54). However most of these disorders are neither diagnosed nor treated. The first step in responding to anyone's mental health needs is to first recognise them. The health care system relies heavily on the person's ability to recognise and report symptoms of ill health.

#### **2.1 The psychiatric interview**

The ordinary diagnostic interview is based upon inquisitive examination. The interview starts with open ended questions looking for any broad themes and symptoms. Following this the clinician asks a series of closed questions to rule in or rule out a specific symptom or condition. This process lays significant emphasis on the interviewer to ask the right questions to elicit the right responses and then to rate these responses consistently to come to an understanding of the persons condition. As such this process can lead to huge variability based on the individual interviewer at any given point in time.

The style of a psychiatric interview has evolved over time. The information gathered to arrive at a diagnosis has changed during this time as well.

#### **2.2 The diagnosis**

Currently three kinds of information are gathered when coming to a diagnosis:

- A clinical history that is taken from the participant and other sources covering a wide range of issues.
- An assessment of the present mental state to find out the phenomenon experienced by the participant.
- Information gathered by any other investigations looking for any other pathological explanation for the participant's presentation.

### **2.3 Development of the assessment and diagnostic process**

Attempts to standardise the assessment and diagnostic process started around the mid 20<sup>th</sup> century. The pioneering tools were largely developed for research projects (55). These tools developed for epidemiological research used various screening and mental disorder detection tools, which draw upon various traditions. The initial ones were self administered paper and pencil tests. The earliest of these was the Minnesota Multiphasic Personality Inventory (MMPI) (56). Some of the items from this were incorporated into the Army Neuropsychiatric Screening Adjunct (57) for self administration. These self administered tools led to the development of interview tools such as the Health Opinion Survey (HOS) (58) used in the Stirling County study, the Health Interview Survey (HIS) (59) used in the Manhattan Study and the Psychiatric Epidemiological Research Interview (PERI) (61).

All these interviews shared some common principles

- they were designed for use by lay interviewers
- the tools were not tied to any diagnostic systems with the exception of the HOS
- they were used mainly to identify mental health problems in a broader sense and not to arrive at a clinical diagnosis.

The second tradition in psychiatric epidemiology was that of formalised clinical interviews (60). Single psychiatrists or a small group working closely would collect the data necessary to judge the clinical condition. Various sources were probed for information and the assembled information was used to reach a diagnostic decision. This led to the development of standardised instruments like the Psychiatric Status Schedule (PSS) (62) and Present State Examination (PSE) (63, 64). The pioneering ideas in the development of these instruments were the attempt to bring the process of cross examination in order to elicit a symptom. The Psychiatric Status Schedule (PSS) and the Present State Examination (PSE) were designed for assessment of current health status and did not take into account past history necessary to come to a diagnosis.

The Present State Examination had 3 basic principles. These included

- Firstly, a check list of items which systematically covered the entire phenomenon likely to be considered during a Present State Examination. The symptoms were defined in some detail and also a sequence of questions was laid down so as to aid the interview process.
- Secondly, the time period covered during the assessment process was limited to the last 1 month. This was based on the fact that if it was a longer time frame then the participant may not be able to remember the symptom accurately and if it was shorter then only short term fluctuations in symptomatology would be recorded at the expense of an overall clinical picture.
- Thirdly, a system of 'cut off points' were introduced so that if after exploratory questions a particular symptom is not elicited a new line of questioning could commence. This was to help keep the interview process time limited.

The other important idea of these instruments was to group the items of questions into a manageable number of symptoms and then further group them into syndromes. Then using the computer, attempts were made to allocate the participant to a clinical group thus trying to limit some of the unpredictability in diagnosis due to individual bias. However this system had certain drawbacks such as a lack of clear diagnostic criteria, variable amount and quality of information for individuals and question as to whether diagnostic rules were uniformly applied across studies. The initial tools had open ended questions or covered only some aspects of the items to be scored. They did not provide any specific rules to move from responses, to further probing questions. These tools also required the interviewer to use their judgement to arrive at a diagnosis. This meant that the interviewers had to be clinically trained. (60)

The third tradition of psychiatric interviewing began as an aid to clinical research. The purpose of these assessments was to improve psychiatric nosology (60). The other important challenge was to develop interviews that can be administered by lay interviewers but achieve similar results to traditional interviews or clinician administered tools.

To achieve this they had to fulfil two criteria

- they had to be developed in such a way that it required relatively little judgement from the interviewer by specifying each question to be asked
- the tool had to be able to distinguish significant symptoms from the ordinary worries, concerns of daily life by setting requirements for clinical significance.

The Renard Diagnostic Interview (RDI) (65) was one of the initial tools to be developed for this purpose. The tool was structured with specified question probes to clarify severity and to

distinguish psychiatric symptoms from the consequences of physical illness or drug and alcohol effects. The tool operationalised the Feighner Criteria to allow a diagnosis to be made using the criteria. Subsequently the Diagnostic Interview Schedule (DIS) (66, 67, 68) was developed based on the RDI. This tool was developed for use in the Epidemiologic Catchment Area (ECA) study which was a community based survey of mental disorders in the United States of America. Questions were developed to make distinctions between current and past symptoms and to generate a diagnosis based on the DSM-III, the RDC, as well as the Feighner criteria

In 1979, the World Health Organisation (WHO) and the United States Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) agreed on a joint project to foster a common language to improve the accuracy and reliability of diagnosis and classification in the field of mental health (68). The DIS was subsequently expanded at the behest of the World Health Organisation (WHO) to generate diagnosis based on the definitions and criteria of the WHO International Classification of Disease (ICD). This led to the development of the Composite International Diagnostic Schedule (WHO-CIDI) (69)

The diagnostic assessment tools that are in existence currently can be classified as below (42)

- Diagnostic checklists
- Semi-structured interviews
- Fully structured diagnostic interviews
- Diagnostic screening questionnaires

As the development of these tools progressed they became quite detailed and were able to elicit symptoms and arrive at a diagnosis reliably. However their use in routine clinical



practise has been limited particularly in the United Kingdom. These are discussed in detail in the next chapter.

Several other instruments were developed mainly for the measurement of symptoms, for example Hamilton Depression Rating Scale, (70, 71), Beck Depression Inventory (BDI) (72), Brief Psychiatric Rating Scale, (73) etc. Other aspects of measurements related to mental health, for which assessment tools were developed included

- Assessment of needs (e.g. Camberwell Assessment of Needs) (74)
- Quality of life and social functioning (e.g. Lancashire Quality of Life) (75)
- Specific risks of self-harm or harming others (e.g. Hare's Psychopathy Checklist-revised , PCL-R (76), Violence Risk Appraisal Guide, VRAG (77) and Historical, Clinical and Risk assessment scale, HCR-20 (78).
- Outcomes over a period of time (e.g. Health of the Nation Outcome Scales, HoNOS (79).

The various tools mentioned above fulfil a variety of purposes. These include

- as a screening measure to identify individuals who need treatment, monitoring or other interventions.
- as a diagnostic aid
- to assess clinical features in more detail to inform further treatment or care
- to assess and monitor other associated factors such as risk, needs and quality of life
- to monitor effects of interventions and to monitor outcomes
- for administrative purposes

## **2.4 The use of computers in assessment and diagnostic interview**

In recent years the use of computers in assessment and diagnostic interviews is increasingly becoming the norm. The application of computers happens in different ways. These include

- as an aid to administer and record the responses to an assessment tool
- as an interactive technology where the computer can generate questions that can be asked over the telephone using interactive voice response technology
- as a diagnostic aid where algorithms and programs specifically written for the assessments generate a diagnosis based on the responses received to a series of questions.

Though the first two applications are important, this chapter focuses on the third application.

The development of computer programs to assist in the diagnostic process started in the 60's. The development of diagnostic criteria such as the Feighner criteria significantly influenced this development. The features of the criteria that helped the development of computer programmes included (82):

- quantification of criteria (i.e., stating clearly the minimum numbers of the symptoms that needs to be present in order to arrive at a diagnosis) which allowed for combining symptoms to arrive at a diagnosis
- clearly defined diagnostic hierarchies (i.e., stating clearly the hierarchy of diagnosis and allowing a selection among diagnosis for which the respondent met positive criteria. It also allowed the programs to make multiple diagnosis if criteria were met for diagnosis not declared to be mutually exclusive)

When developing the structured diagnostic interviews two alternative logical strategies can be used. In the first, the diagnostic algorithm sits extrinsic to the interview schedule. The rules of summarising the symptom data happens once the interview is completed. The second system modelled on clinical interview has the diagnostic algorithm integral to the structure of the interview. The initial attempts at developing computer programs for classifying participants according to standard psychiatric nomenclature relied on a variety of *statistical models* based on either the probability of various symptom patterns occurring in the various diagnoses or statistical procedures based on measures of profile similarity (80, 81, 82, 83). Subsequently computer programs were developed which were not based on statistical models but on a *logical decision tree model* similar to the differential diagnostic procedure employed in clinical medicine. The result of each question rules out one or more diagnoses or groups of diagnoses and determines the next question asked. The steps involved in the development of the logical decision tree model were as follows

- Develop a flow chart with a schema of the basic logic implicit in the diagnostic criteria.
- Define each decision in terms of raw scale score cut off points and logical operators.
- Subjects who do not meet the criteria for a decision at one point could be examined at other points which can lead to a diagnosis.

The advantages of the logical decision tree model were

- It does not rely on base rate of occurrence of symptoms or signs for each diagnosis (which could be variable).
- It is possible to subject the decision tree program to clinical scrutiny and modifications can be made to more clearly approximate clinical practise.

The various examples of the logical decision tree models are

## ***DIAGNO***

DIAGNO is a computer program for psychiatric diagnosis where the input data came from the Psychiatric Status Schedule (PSS) (84). The output for the DIAGNO was one of the twenty five American psychiatric Association (APA) diagnoses and qualifying phrases and two unofficial diagnoses: not ill and non specific illness with mild symptomatology.

## ***CATEGO and CAPSE10***

CATEGO is a computer program for psychiatric diagnosis where the input data came from the Present State Examination (PSE) (85). Subsequently this was developed as the CAPSE10 when the SCAN interview was developed incorporating the Present State Examination (PSE10). The data analysis is both 'top down' and 'bottom up'. This produces a variety of outputs including

- profiles of individual symptoms or Item Group Checklist (IGC) items in the index of definition for ICD 10 or DSM-IV categories
- a prediagnostic profile of categories
- a list of items rated as present

The CAPSE10 also provides a standard statistical output from a series of cases and allow downloading to statistical packages.

## ***GMS-AGECAT***

AGECAT (Automated General Examination Computer Assisted Taxonomy) is a computerised diagnostic system for use with the Geriatric Mental State (GMS) (86). This offered a computer-generated differential diagnosis with comorbid states. The Geriatric Mental State was prepared specifically for the studies of the US/UK Diagnostic Project (103) and later epidemiological studies supported by the Wellcome Trust. The construction of the

algorithm involved many hundreds of clinical decisions. The AGECAT algorithm took around four years to construct and validate.

In 1986 Copeland et al published the AGECAT algorithm based on the Geriatric Mental State (GMS). It took the symptoms based on the GMS and coalesced them into eight principal diagnostic syndromes (organic disorders, schizophrenia, mania, depression (psychotic and neurotic or dysthymic types), anxiety disorder, phobia, hypochondriasis, and obsessional disorders. Each subject was allocated to a level on each of these eight syndromes according to the disposition of the symptom components. When this is used in conjunction with the history and aetiology schedule it provides a sub-typing of dementia (86). In the second half of the program the syndrome levels were compared one with another to derive an overall differential diagnosis with accompanying co-morbid states.

The GMS interview was translated by demand into over 40 languages and the AGECAT program showed a remarkable robustness in a variety of cultural settings and continues to be used (87). Sometimes as in the 10/66 studies (88) and the Eurodep studies (89) this has been used as part of larger international epidemiological investigations. It formed the diagnostic basis of the MRC ALPHA study (90) of the incidence of dementia.

## **Chapter 3**

### **3.0 Descriptions of some commonly used diagnostic tools**

The concept and the process of diagnostic interview schedules developed over a number of years as discussed in the previous chapter. These tools have been developed for various purposes with some designed for epidemiological studies and others for primary use in psychiatric populations. There are some others which are developed for use in primary care settings. The diagnostic assessment tools that are in existence currently can be classified into

- Diagnostic checklists
- Semi-structured interviews
- Fully structured diagnostic interviews
- Diagnostic screening questionnaires

This chapter will try and explore each of these sections and explain some of the relevant tools in a bit more detail.

#### **3.1 Diagnostic checklists**

The diagnostic checklists are designed to guide the clinician to arrive at a diagnosis based on a detailed interview conducted by the clinician using their own questioning process. At the end of the interview the clinician checks the presence or absence of symptoms for one or more diagnosis and follows a diagnostic algorithm laid down in the instrument to arrive at a diagnosis. They do not include questions for assessing signs and symptoms that need to be present for a criterion to be positive (42). The examples of diagnostic questionnaires include

- The Lists of Integrated Criteria for the Evaluation of Taxonomy (LICET). There are 2 versions – one for Schizophrenia and other non-affective psychoses (LICET – S) and the other one for depressive disorders (LICET-D) (91)

- Operational Criteria Checklist (OPCRIT) for affective and psychotic disorders.(92, 93, 94)
- ICD-10 Symptom Checklist for Mental Disorders (95, 96)
- International Diagnostic Checklists (IDCL). There are 2 versions of this one to check diagnoses according to ICD-10 and the other to check diagnoses according to DSM-IV (97)

### **3.2 Semi-structured interviews**

Semi-structured interviews provide the clinician a set of questions to help them come to a conclusion. However it allows considerable leeway to the clinician to ask further questions to clarify issues (98). Several semi-structured interviews have been developed to assist the trained clinician in making diagnoses according to the Research diagnostic criteria (RDC), DSM-IV Axis I disorders and disorders coded F1 - F5 in ICD-10. The examples of semi-structured diagnostic interviews include the following

- Structured Clinical Interview for DSM-IV (SCID-I)

Structured Clinical Interview for DSM-IV (SCID-I) is a *clinician administered, semi structured interview* for use in psychiatric participants (99). The interview starts with an overview section that obtains demographic information, past history and presenting problems. The main body of the SCID – I consists of nine diagnostic modules. These are Mood Episodes, Psychotic Symptoms, Psychotic Disorders Differential, Mood Disorders Differential, Substance Use, Anxiety, Somatoform Disorders, Eating Disorders and Adjustment Disorders. The interview provides required probe questions and suggested follow up questions. There is provision to skip sections if the subject fails to meet the critical criteria required for a particular disorder. There are two versions of the tool

- SCID-I (Research version) (100)

- SCID – CV (Clinical Version) (101)

Interviewers are encouraged to use all available sources of information in making ratings. Most diagnoses are made on a lifetime (ever present) and current (present in the last month) basis. Diagnoses are made by the interviewer during the course of the interview. A separate program or algorithm is not necessary in making the diagnosis. Computerised versions of both research and clinical version of the SCID are available.

- Schedule for Clinical Assessment in Neuropsychiatry (SCAN)

The Schedule for Clinical Assessment in Neuropsychiatry (SCAN) (102) is a *semi-structured* set of instruments aimed at assessing the symptoms and course of mental disorder in adult life. The instrument allows clinicians to phrase question about particular symptoms and make their decision about the clinical relevance of the symptom following the definitions provided in the SCAN glossary. Though the SCAN was designed to be used by psychiatrists, clinical psychologists in clinical settings it has subsequently been used by other professionals including trained nurses and social workers in field studies. The SCAN consists of

- an interview schedule, the 10<sup>th</sup> edition of the Present State Examination (PSE) consisting of two parts.

*Part one* covers non psychotic phenomena and includes the following sections: Somatoform and dissociative symptoms, worrying, tension, panic, anxiety and phobias, obsessional symptoms, depressed mood and ideation, thinking, concentration, energy, interests, bodily functions, eating disorders, expansive mood and ideation, use of alcohol and use of psychoactive substances other than alcohol.

*Part two* covers psychotic and other symptoms and includes the following sections: Perceptual disorders, hallucinations, thought disorder, delusions, cognitive impairment, mood, behaviour and speech abnormalities and an Autistic spectrum checklist.

- Glossary of the differential definitions for PSE10 items



This provides definitions of symptoms and signs to be assessed by the interviewer.

- Item Group Checklist (IGC)

This provides a means of rating information obtained only from the case notes and/ or informants other than the respondent.

- Clinical History Schedule (CHS)

This provides an opportunity to check or enter data relevant to the broader clinical or social history and also to rate the presence or absence of disorders.

Each individual item on the SCAN interview is accompanied by a main probe question or questions and several optional questions. The interviewer can rate two separate episodes of illness (primary and secondary) on one of the four rating scales.

- Scale I (4 points) , is the main scale to rate items
- Scale II (4points), is used to rate psychotic symptoms
- Scale III (3 points), is used for motor, behaviour, affect and speech items
- Scale IV (3 points), is used to rate Item Group Checklist (IGC)

Three kinds of primary periods of illness (current condition) can be rated. They are

- Present state (month before the interview)
- Present (up to a year before the examination)
- Lifetime (anytime from onset to the present examination)

A secondary period of illness may be rated from the Present State Examination (PSE) or the Item Group Checklist (IGC) or both. This secondary period may be a representative period better describing the subject's condition or a lifetime episode before the onset of the present condition. CATEGO or CAPSE10 programs process data entered from the interview and produce a variety of outputs.

- Geriatric Mental State Schedule (GMS)

The Geriatric Mental State Schedule (GMS) is a standardised, semi-structured interview for examining and recording the mental state in elderly subjects. It allows the classification of participants by symptom profile and can demonstrate changes in profile over time (103). The GMS schedule was first conceived of during the US/UK Cross National Studies (1975) of the elderly in hospital. The existing methods at the time for eliciting and recording mental state were found to be unsuitable for older age groups. The main drawbacks of the existing systems included

- organic areas of pathology were not sufficiently covered
- questions were often too long and complicated
- there was no consistent provision for terminating an unsatisfactory interview.
- there was no provision for covering major symptom areas briefly at the beginning for the frail elderly in hospital, unable to tolerate a full interview.

The first edition of the GMS combined the Present State Examination (PSE) and the Psychiatric Status Schedule (PSS), as well as a range of specially developed new items. The final version of the first edition contained in all 541 items; 268 PSE, 64 PSS and a further 209 new items (104). There are various versions of the Geriatric Mental State Schedule (GMS). These include

- Geriatric Mental State Schedule (GMS)- Full version
- Geriatric Mental State Schedule (GMS) Version A1, A2 and A3
- Geriatric Mental State Schedule (GMS) Version B2 and B3

The original version of the Geriatric Mental State Schedule (GMS) was devised for research in environments (primarily hospitals) where substantial levels of psychiatric symptomatology were expected. This version is sometimes referred to as the Geriatric Mental State Schedule (GMS) - Full version. Subsequently versions of the tool adapted for use and research in the community were produced. These community versions are the A and B versions. The A

*versions* cover the full range of AGECAT diagnoses, and are preferred for general use. Version A1 was used in the used in Liverpool for the Continuing Health in the Community project first wave of interviews and (in Spanish) for the Zaragoza study. Version A2 differs from version A3 in that the latter contains extra ratings designed to collect the information needed for DSMIII-R and ICD10 diagnoses (extra information on time periods of symptoms). The *B versions* are shorter and only collect information on the organic, depression, and anxiety syndrome clusters. There was no version B1. The difference between versions B2 and B3 is the same as between A2 and A3.

The History and Aetiology schedule (HAS) is part of the GMS-AGECAT package. It is designed to be given with the various versions of the Geriatric Mental State in order to clarify diagnosis into the sub-categories of AGECAT, ICD-10R, DSM-III-R and to cover the MRC's Clinical Information for Studies in Alzheimer's Disease. The HAS interview is designed to be given to the most relevant significant other, if a complete GMS interview with the subject is not possible, to supplement the missing report, or to validate a report of a questionable subject. The informant must have been living with the subject, or visited regularly, and must also have been in touch with the subject for some years, or at least from the beginning of the illness. The information gathered using the GMS and HAS is analysed using a computerised diagnostic system called the *AGECAT*.

- Other examples

Schedule for Affective Disorders and Schizophrenia (SADS) (105) is another example of a semi-structured diagnostic assessment tool. There are also semi-structured diagnostic interviews for specific Axis –I disorders such as the Eating Disorders Examination (106) and the Yale Brown Obsessive Compulsive Schedule (107) and for Axis-II personality disorders

including the Structured Clinical Interview for DSM-IV Axis II Personality disorders (SCID-II) (108) and the International Personality Disorders Examination (IPDE) (109, 110)

### **3.3 Fully structured diagnostic interviews**

Fully structured diagnostic interviews are a set of questions which are defined and should be asked as laid down in the interview. There is no need for the interviewer to ask additional questions or to interpret the answers of the respondent. The examples of fully structured diagnostic interviews include

- Diagnostic Interview Schedule (DIS) and Composite International Diagnostic Interview (CIDI)

The Diagnostic Interview Schedule (DIS) is the first fully structured psychiatric diagnostic interview that could be administered by trained lay interviewers (66, 67, 68). The first version of the DIS was developed in 1978 at the request of the Centre for Epidemiological studies at the NIMH. DIS diagnoses are exclusively based on the definitions and criteria of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual (DSM) of Mental Disorders. In order to address this issue the WHO-CIDI was developed under the auspices of WHO by an international task force under the supervision of Lee Robins. This was subsequently expanded to incorporate other items to form the World Mental Health survey initiative version of the CIDI (WMH-CIDI) (111). The Composite International Diagnostic Interview (CIDI) (69) is a comprehensive interview schedule designed for the assessment of major diagnostic categories according to the criteria in ICD-10 and DSM-III-R. The CIDI is an expansion of the Diagnostic Interviewer Schedule (DIS). This is a highly structured instrument intended for use by trained lay interviewers and in epidemiological studies of mental disorders in general population. The CIDI begins with demographic details followed by a series of modules. A special Substance Abuse Module (CIDI –SAM) covers

tobacco, alcohol, and other drug abuse in considerable detail. This allows for the assessment of the quality and severity of dependence and its course. The interviewers follow a flowchart and ask a series of formatted questions. When the subject answers in the affirmative to experiencing the symptom three further questions are posed. These include if the subject has

- informed a doctor or other professional about the symptom
- taken any medication or treatment for it
- experienced significant interference with activities of daily living as a result

If none of these is true then the symptom is considered not to be clinically significant. However if any of these indicators are true then the interviewer tries to establish if these can be explained by the presences of a physical illness, injury or due to use of medications, drugs or alcohol. If the symptom is not solely due to a physical cause then this is taken as a positive symptom. Subsequently if a certain number of symptoms are positive for a particular disorder the interviewer tries and determines the prevalence and age of onset of the condition initially as well in the present episode. The item scores from the interview are entered into a computer program that generates both diagnostic and symptom profile. The CIDI is designed to accommodate both the ICD-10 and DSM-IV systems.

A computerised version of the CIDI called the CIDI-Auto which can be interviewer or self administered is available. A computerised version that evaluates the presence of symptoms in the last year is also available. The whole interview takes approximately 90 to 120 minutes to administer in most general population samples. However due to the modular structure of the instrument certain modules can be skipped if deemed not relevant to the subject thus shortening the process.

### **3.4 Diagnostic screening questionnaires**

A number of screening tools have been developed to identify mental disorders and the distress associated with them. These screening questionnaires cover both the Axis I and Axis II conditions. Some examples include

#### *Axis I*

- Primary Care Evaluation of Mental Disorders (PRIME-MD)

Primary care evaluation of Mental Disorders (PRIME-MD) is an instrument developed to assess mental disorders in a primary care setting (112, 113). The questions are answered yes-no and the clinician evaluates if sufficient criteria have been met to warrant a diagnosis. The instrument consists of two parts:

- Participant questionnaire

This is a one page questionnaire with twenty five yes-no questions about signs and symptoms of common mental disorders that may have been experienced in the last month. This is completed by the participant. The questions pertain to majority of somatic complaints seen in a primary care setting, depression, anxiety, abnormal eating behaviours and alcohol use.

- Clinician Evaluation Guide

This is a nine page structured interview that a primary care physician uses to evaluate the participants symptoms further. This covers five diagnostic modules that include mood, anxiety, alcohol use, eating disorders and somatoform disorders according to the DSM-IV criteria.

Sixteen diagnostic criteria are covered by the questions on this instrument.

- Eight of them correspond to DSM-IV diagnostic criteria. These are major depressive disorder, dysthymic disorder, panic disorder, generalised anxiety disorder, bulimia

nervosa (purging type), bulimia nervosa (non purging type) and multisomatoform disorder.

- Five of the diagnoses are sub threshold as they are characterised by fewer symptoms than are necessary to make a formal diagnosis. These include minor depressive disorder, anxiety disorder not otherwise specified, probable alcohol abuse, binge eating disorder and somatoform disorder not otherwise specified.
- There are three rule out (R/O) diagnoses. These include R/O bipolar disorder, R/O depressive disorder due to general medical condition, medication or other drug, R/O anxiety disorder due to general medical condition, medication or other drug.
- Symptom-Driven Diagnostic System for Primary Care (SDDS -PC)

The Symptom-Driven Diagnostic System for Primary Care (SDDS -PC) was developed as a computerised instrument to improve the detection, diagnosis and ongoing management of mental disorders in primary care practise (112, 114, 115, 126). The SDDS-PC consists of three components

- A twenty nine item patient self-report screening questionnaire
- A diagnostic interview guide consisting of six diagnostic modules and a module for evaluating suicide risk
- A longitudinal tracking form

The SDDS-PC is a self-administered screening tool. The answers must be entered into a computer to generate a DSM-IV diagnosis or a statement in the presence of subsyndromal symptoms.

- Other examples

Other examples include the General Health Questionnaire (GHQ) (116) and the Mini International Neuropsychiatric Interview (MINI) (117).

## *Axis II*

- Screening questionnaire of the SCID II for DSM-IV.

The SCID-II personality questionnaire is used as a screening self report questionnaire prior to the administration of the Structured Clinical Interview for DSM-IV Axis II Personality disorders (SCID-II) (108). The DSM-IV version of the SCID-II questionnaire has 119 questions which the interviewee is invited to answer ‘yes’ or ‘no’.

- Screening questionnaire of the IPDE

The International Personality Disorders Examination (IPDE) is accompanied by the screening questionnaire (109, 110). The DSM-IV version of the questionnaire has 77 items whereas the ICD-10 version has 59 items. The combined version has 94 items. The items of the questionnaire are statements that need to be answered ‘true’ or ‘false’.

- Other examples

Other examples of diagnostic screening questionnaires for Axis II conditions include the Schizotypal Personality Disorder Questionnaire (SPQ) (118) and the Personality Disorder Questionnaire (PDQ) (119).

There are a variety of assessment tools that can be used in epidemiological studies as well as in primary and secondary care settings as discussed. The question that naturally arises is “What is the need for another assessment tool”? The reasons and the rationale behind the development of the Global Mental Health Assessment Tool are explored in a bit more detail in the next chapter.



## **Chapter 4**

### **4.0 The need for the development of a clinical assessment tool to be used in all mental health care settings – The Global Mental Health Assessment Tool (GMHAT)**

A vast majority of people with mental disorders including those with severe mental illness, view primary care services as the cornerstone of their healthcare system (120). A large proportion of people with mental disorders around the world get assessed and managed within the primary care services. In a majority of cases they also act as gatekeepers to accessing secondary care services for more severe problems. Guidelines have been laid down under the Department of Health's National Service Framework (DOH 1999) (121) where Primary Care and Specialist Services have to work together to provide care for people with common mental disorders to severe mental illness. There is a growing recognition both in developed and developing countries that comprehensive mental health services cannot be provided without the active involvement of Primary Care health teams (122, 131).

A significant proportion of the people accessing primary care services fail to receive appropriate help in spite of developments in new treatments for mental illnesses (psychological and social as well as medicinal), and as a consequence suffer in silence. There are a variety of reasons for this. Lack of time, poor skills for detecting and treating people with mental health problems and inadequate training available to general practitioners (GPs) and primary care workers for assessing the mental health of their participants (123, 124,125) seems to be some of the main reasons for this. A good quality assessment of mental health problems is the key to providing a high quality care.

The self-assessment scales and interview schedules currently available have limited value in day-to-day clinical practice. Most were developed for research purposes; many require extensive training prior to use or predominantly cover only a limited range of clinical problems such as anxiety and depression. There are a few clinical tools that have been developed more specifically for primary care physicians, such as the Primary Care Evaluation of Mental Disorders (113) and the Symptom Driven Diagnostic System for Primary Care (SDDS/PC) (114). Both are aimed at detecting only common mental disorders. A self-administered scale based on hand-held computers, the Quick Psycho Diagnostic Panel (QDP) (127) also covers a similarly narrow range of disorders. None of these tools helps in detecting psychotic or organic disorders. A structured assessment of long-term mentally ill participants by their general practitioners increased their involvement in participants' psychiatric care, but was not found to be feasible for use in routine surgery appointments (128).

#### **4.1 The need for an assessment tool to bridge the gap between primary and secondary care services**

The need to provide a comprehensive range of routine clinical assessments at all levels of delivery of mental health has been acutely felt over the years. Most mental health problems are first seen at primary care level, and the health staff at that level have limited time to make mental health assessment. The World Health Report 2001 (129) states that the advantages of integrating mental health services with the Primary Care include easy access, reduced stigmatisation, and early detection and treatment of mental disorders. This integration also has an advantage of efficient management of resources through shared administrative infrastructure with a potential to provide universal coverage of mental health care (132).

Development of a nationwide patient IT system has been a preoccupation of governments for some time. A huge amount of money is spent on this but without much success. As a result Mental Health Trusts have developed their own or adapted existing systems to meet their patient IT system needs. There is also an expectation from the staff to gather information and complete forms covering different health and social aspects to meet policy needs. This has lead to development of systems adding new assessments and scales. Most systems have different clinical assessment, risk assessment and care plan templates. To complicate things further at times different teams have their own assessment templates. Unfortunately majority of the IT systems do not allow for streamlined process of assessments between primary and secondary care mental health services. This causes duplication of work and efforts.

A good quality, user friendly, standardised clinical assessment tool in mental health which can also bridge the gap between primary and secondary care services is urgently needed. The paucity of a clinical assessment tool that can be used in primary and secondary care settings led to the development of the concept of the Global Mental Health Assessment Tool. The Global Mental Health Assessment Tool (GMHAT) for use by Primary care (GMHAT/PC) (130) and Mental Health professionals (GMHAT/Full) has been developed with the view to provide a seamless transition between the Primary Care and Specialist Services.

#### **4.2 Global Mental Health Assessment Tool - Primary care version (GMHAT/PC)**

The Global Mental Health Assessment Tool - Primary care version (GMHAT/PC) is a computerised clinical assessment tool developed to assess and identify mental health problems in primary care. This was developed with a view that proper assessment and identification of mental health problems at primary care level is essential in providing appropriate care to people suffering from mental disorders in any community (130).

The concept of the Global Mental Health Assessment Tool - Primary care version (GMHAT/PC) was developed to provide the Primary Care services with an easy to use diagnostic tool that would be able to detect common psychiatric disorders at the same time not ignoring the more serious conditions.

The Global Mental Health Assessment Tool - Primary Care Version (GMHAT/PC) has the following characteristics:

- it is easy to use in day-to-day clinical practice by general practitioners or other health care staff;
- it is able to detect common psychiatric disorders, yet not neglecting more serious conditions;
- it produces automatically a referral letter to local community psychiatric services.

The reliability and validity of the primary care version was tested. The tool was demonstrated to be easy to use with good inter-rater reliability and validity (130). Subsequently GMHAT/PC was tested out by other clinicians including primary and secondary care nurses (133) and nurses in other settings such as cardiac rehabilitation unit (134). The tool was found to be reliable and of good utility in these settings when used by non psychiatrists.

GMHAT/PC has been translated to a number of languages (Spanish, Netherlands, German, Welsh, Hindi, Chinese, Arabic, Tamil and Marathi, with French, Portuguese versions in preparation). Validation and feasibility studies have been completed on Hindi (135), Arabic and Netherlands versions. Work is ongoing in validating the other language versions of the Tool.

**PART II:**  
**THE GLOBAL MENTAL HEALTH ASSESSMENT TOOL- Full**  
**Version (GMHAT/Full)**

## **Chapter 5**

### **5.0 The Global Mental Health Assessment Tool-Full version (GMHAT/Full)**

The Global Mental Health Assessment Tool/Full version (GMHAT/Full) is based on traditional history taking methods in psychiatry. The format and structure of GMHAT/Full was kept in line with the routine psychiatric clinical assessment expected to be done by clinicians in everyday practice. Currently a user's manual or a paper detailing the Global Mental Health Assessment Tool/Full Version has not been published. The information detailed in this chapter has been gathered following extensive discussions with the main authors of this tool Prof. Vimal K. Sharma and Prof. John Copeland.

The GMHAT/Full was developed for secondary care health practitioners to use in their routine and day to day clinical practice. This has been an attempt to apply principles of evidence based standardised assessments in routine clinical practice. The main focus in GMHAT/Full development was to keep it as user friendly as possible. The object was to make GMHAT/Full a genuine assistant to the practitioner in making a comprehensive and accurate mental health assessment of all the participants they encounter during their clinical practice.

### **5.1 Description of the Global Mental Health Assessment Tool-Full version**

The GMHAT/Full is based on traditional history taking methods in psychiatry. The format and structure of GMHAT/Full was kept in line with the routine psychiatric clinical assessment expected to be done by clinicians in everyday practice. It was therefore necessary to facilitate writing descriptive details as well as recording problems and symptoms by rating according to their persistence and intensity. Assessment starts with a straightforward question

“What has been troubling you lately?” followed by supplementary questions to get more information about the details of the participant’s present problems. GMHAT/Full has facility for descriptive (qualitative) as well as database (quantitative) accounts of participant’s problems. The database questions helps in scoring, categorising and comparing between cases and over time. The descriptive part helps in elaborating and adding any information not available in database form (Appendix 1).

Psychiatric assessment requires skills as much as structure of the interview. The skill of making the participants comfortable, allowing them to talk about their problems, asking relevant questions in a sensible and sensitive manner are essential for a good assessment. The GMHAT/Full is a framework that allows the practitioner to apply their skills in gathering all the relevant information in a systematic manner. An assessment starts with a straightforward question, that is “What has been troubling you lately?” followed by supplementary questions to get more information about the details of the participant’s present problems. The GMHAT/Full allows the practitioner to ask any supplementary questions thus expanding on the questions that appear if they are relevant and necessary. This facility makes the GMHAT/Full very flexible and user friendly.

The initial framework of the GMHAT/Full was developed by a panel of experienced psychiatrists (Dr. Vimal K. Sharma, Prof. John Copeland and Dr. Rashmi Parhee). The framework was a combination of descriptive and database questions. The database questions helped in scoring, categorising and comparing between cases and over time. The descriptive part helped in elaborating and adding any information not available in database form. The comprehensive assessments not only account details of present and past mental health problems, but very comprehensive details of family background, social background,

developmental and psychological background, all of them are important in formulating and understanding of the participant's problems. The questions were tried in routine practice and modified based on comments and feedback received from service users. The whole process of refining questions over a period of two to three years made them clinically relevant. This framework was subsequently applied in clinical practise. Questions which were found to be unsuitable were changed following discussion in the GMHAT group. e.g. A timeframe for each question. This was found to be too cumbersome to be used in clinical practise and hence was reduced to an overall timeframe. The questions were modified a few times and reapplied in clinical practise until it satisfied the team as well as the service users. The overall format was modified to fit in a routine practise of a new participant assessment of 60 to 90 minutes.

Other areas which were needed to make it a comprehensive assessment tool were considered. These included (a) standardised mental state examination which is very detailed to include almost every possible psychiatric symptom (b) a section for a quite detailed account of substance misuse and alcohol misuse (c) a section that takes account of general needs and aspects of quality of life, as well as (d) a section of detailed risk assessment. The structure of the assessment is such that it takes account of almost every aspect of assessment without duplicating any of the questions in any of the GMHAT/Full sections.

The assessment covers all aspects of problems and broadly divided in to five main sections

1. Clinical history
2. Mental state examination
3. Assessment of unmet needs and Quality of Life
4. Risk assessment
5. Formulation and planning of care



## Clinical History

The clinical history part of the GMHAT/Full covers following six areas

- Presenting complaints
- Past mental health
- Physical health
- Family history
- Personal and social history which includes subsections on childhood, schooling, occupational history, psychosexual history, forensic history, premorbid personality and current social circumstances.
- Substance misuse which includes the subsection for alcohol abuse, drug use and smoking.

## Mental state examination

The next section on mental state examination has one hundred and twenty two questions divided into nineteen subsections. One question at a time appears from these respective subsections. The questions proceed in clinical order along a tree-branch structure. For each of the major clinical disorders there are one or two screening questions. If the participant does not have symptoms on the initial items of a subsection, the interview moves on to the next subsection, thus saving much valuable time.

The questions are rated according to a rating scale as described below.

- 0= No evidence of presence of symptom
- 1= Symptoms present and mildly distressing or disabling
- 2= Symptoms moderate and frequent

- 3= Symptoms severe and persistent
- 8= When interviewer is unsure about the presence or absence of the symptom
- 9= Not applicable or not asked

The subsections in the mental state examination include

- |                               |                          |                                    |
|-------------------------------|--------------------------|------------------------------------|
| - Worry                       | - Hypochondriasis        | - Memory                           |
| - Anxiety                     | - Obsessions/compulsions | - Dissociative disorder            |
| - Concentration               | - Phobias                | - Insight                          |
| - Depression                  | - Manic symptoms         | - Appearance, behaviour and affect |
| - Suicidal thoughts           | - Thought disorders      |                                    |
| - Sleep                       | - Delusions              |                                    |
| - Appetite, weight and libido | - Hallucinations         |                                    |
| - Eating disorder             | - Orientation            |                                    |

### Unmet needs and Quality of Life

The next section on *unmet needs and quality of life* has a checklist of eleven needs and provision to record the degree of satisfaction and ongoing difficulties for each one of them.

These include

- |                              |                           |                                  |
|------------------------------|---------------------------|----------------------------------|
| - Financial situation        | - Social benefits         | - General health                 |
| - Accommodation              | - Recreational activities | - Effects of medication          |
| - Education                  | - Interpersonal relations | - Overall satisfaction with life |
| - Activities of daily living | - Family relations        |                                  |
| - Employment                 |                           |                                  |

### Risk assessment

The next section on risk assessment has three subsections.

- The subsection on *self harm* has a probe question to look for any presence of self harm. Then there is provision to record the method used, severity and intent of the behaviour. There is provision to record similar details for past self harming behaviours.

- The subsection on *violence and aggression* has questions to look for presence of any risk of violence. If present then there is provision to record the method used, severity and intent of the behaviour. There is provision to record similar details for past self harming behaviours.
- The subsection on *self neglect* has questions to look for a presence of neglect. Then there is provision to record the problems and their severity at present and in the past.

### Formulation and planning of care

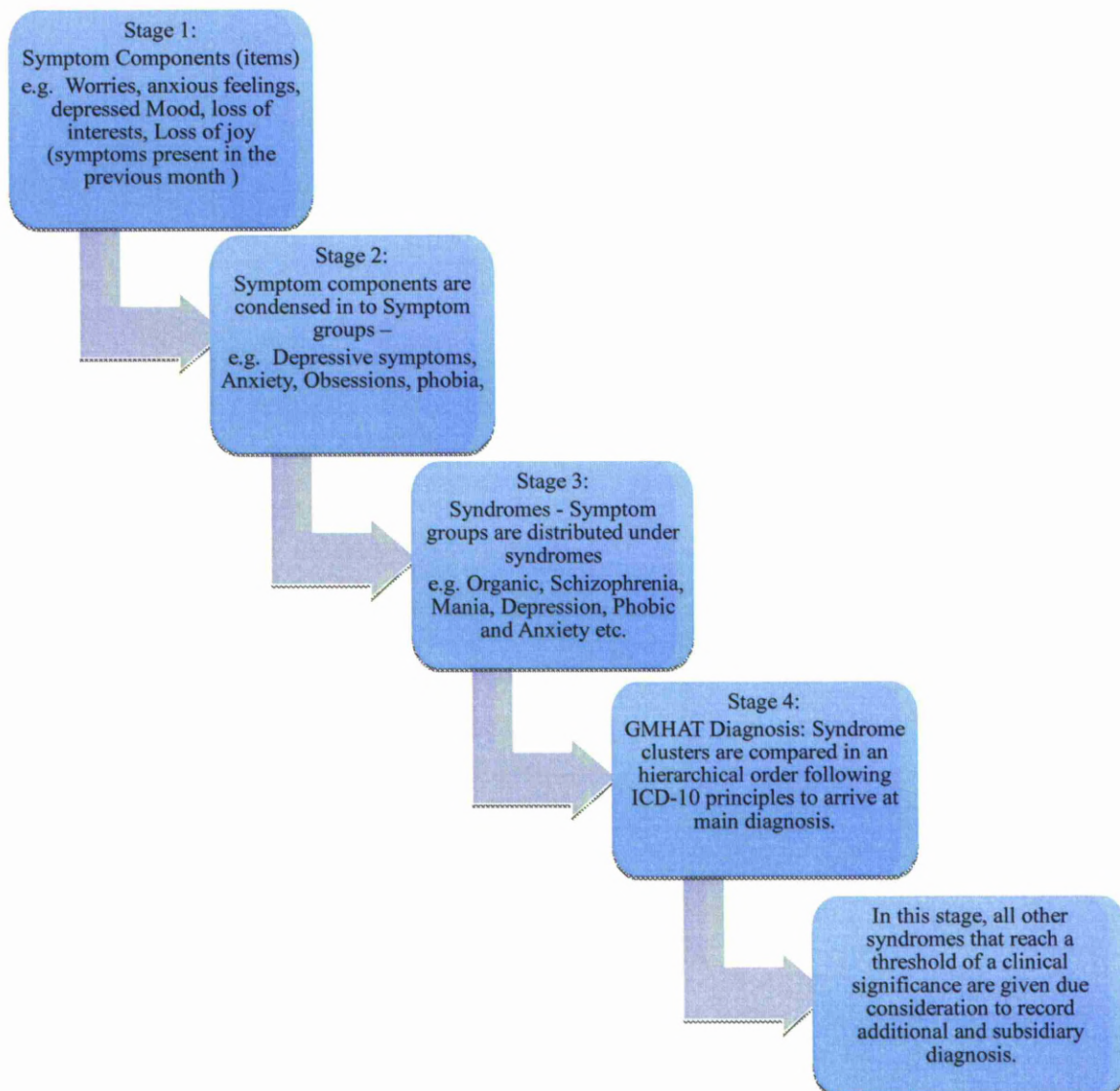
This section is covered by the following subsections

- Diagnosis and overall summary - This subsection has the provision to record a main diagnosis and other diagnosis. An ICD-10 code appears on the side of the diagnosis and a brief description of the condition appears at the bottom of the screen
- Investigations - This subsection has a provision to record the blood, urine, radiology, neuro-imaging, EEG, ECG, lithium, clozaril monitoring and psychometric tests.
- Care plan – This subsection has a provision to record the CPA level, the name, designation and contact number of the care coordinator. Diagnosis, medications, the degree of compliance to them, various interventions and agencies involved can be recorded. This also allows for the relapse indicators, risk factors and the management strategies to be documented.
- Third party information- This subsection makes provision to record information gathered from carers, family and other sources.
- Checklist of items of explanation to the service user and the carers - This subsection provides a checklist of items that need to be explained to the service user and their cares. These include the diagnosis, treatment options and side effects, the care plan, CPA and the action to be taken in a crisis.

## **5.2 The diagnostic algorithm- All-AGECAT**

The GMHAT-full diagnostic algorithm All-AGECAT (**All - AGE** Computer Assisted Taxonomy) is developed on similar principles as AGECAT (86, 136) a well-established computer-assisted diagnostic system used for the Geriatric Mental State examination. The diagnostic program All-AGECAT used in the GMHAT is a considerably expanded version of the original AGECAT to cover areas of psychopathology appropriate for all age groups other than children. It generates diagnoses, covering organic disorders; schizophrenia; paranoid psychosis; schizoaffective disorders; types of mania; major depression and mixed affected disorder; substance abuse from drugs, tobacco, alcohol; eating disorders anorexia and bulimia nervosa; dysthymia, the common neurotic disorders; post-traumatic stress; adjustment disorder and dissociative disorder.

In All-AGECAT, all symptom items based on GMHAT-full interview that are rated positive in history and mental state examination sections form the basis of eventual diagnosis. There are four stages of diagnosis. In the first stage all positively rated items form symptom components. In the next stage symptom components are put together in to symptom groups. Symptom groups are then clustered together to form a syndrome in the third stage. In the final stage, the syndromes and their levels are compared taking account of other clinically relevant information e.g. duration and past history (using ICD-10 criteria) to arrive at GMHAT-full diagnosis. The Algorithm stages and process is illustrated in more detail in the following section.



### **Stage1:**

All-AGECAT takes account of following symptom components:

1. worry
2. worries Bothersome
3. anxiety
4. tension
5. autonomic symptoms
6. panic attacks
7. frequency of panic attacks
8. sudden onset of panic attacks
9. panic attack not associated with a specific cause
10. panic attacks at least lasting some minutes
11. past anxiety / panic symptoms - rating based on severity and frequency
12. concentration impairment
13. concentration
14. depressed mood
15. tearfulness/ crying spells
16. diurnal variation of mood
17. Loss of interests
18. loss of joy
19. lack of energy
20. loss of confidence
21. guilty feelings
22. psycho-motor retardation/agitation
23. past episodes of depression - rating based on severity and frequency
24. hopelessness
25. suicidal thoughts held any time
26. acts of self-harm
27. recent suicidal ideas
28. sleep difficulties
29. initial insomnia
30. early morning wakening
31. when sleep disturbance is due to other causes such as pain, physical problems or noise etc
32. Nightmares
33. appetite loss/ increase
34. weight loss/ gain
35. loss/increase of libido
36. avoidance of fattening food
37. poor control over eating
38. preoccupation of being fat
39. if food dominates life
40. Self-induced vomiting/ other measures to reduce weight
41. loss of periods
42. past eating disorders
43. only persistent preoccupation with serious illness
44. inability to ease the condition
45. visits to several doctors or health providers for the same condition. Don't include referrals or second opinions etc.
46. refusal to accept medical reassurance
47. Obsessive-compulsive checking,
48. compulsions
49. compulsive hand washing
50. inability to resist
51. Obsessions
52. obsessions adversely affecting daily life
53. past episodes of OCD- based on severity and frequency
54. agoraphobia
55. specific phobia
56. social phobia
57. degree of fear
58. degree of avoidance
59. past phobias - based on severity and frequency

### ***Stage 2:***

In this stage all symptom components are put together to form symptom groups.

For example, depressive symptom groups include:

- Depressed mood.
- Associated depressive symptoms e.g. lack of concentration, interest, energy and irritability.
- Symptoms specifically associated with dysthymic forms of depression e.g. initial insomnia and worse in the afternoon.
- Severe symptoms such as bleak future, wishing to be dead and suicidal plans.
- Symptoms associated with psychotic forms such as worse in the morning, retardation, substantive weight and appetite loss
- Psychotic symptoms i.e. mood congruent delusions and hallucinations.

Similarly other symptom groups include Anxiety, Panic attacks, Phobias, Hypochondriasis, Obsessions, Delusions, Hallucinations, Disorientation, Recent memory impairments and so forth.

### ***Stage 3:***

In the next phase group scores are compared with the hierarchy derived from clinical judgement to produce a level of confidence on the syndrome clusters. The higher levels denote increasing confidence. Symptom groups form the basis of generating following All-AGECAT syndromes:

Organic  
Schizophrenia and paranoia  
Mania  
Major Depression  
Dysthymia  
Obsessional  
Eating disorder - Anorexia and Bulimia  
Post - Traumatic Stress Disorder

Hypochondriasis  
Obsessive Compulsive Disorder  
Dissociative Disorder  
Learning Difficulty  
Attention Deficit Disorder  
Autistic Spectrum Disorder  
Negative Syndrome  
Delusional Disorder

All syndromes are given levels ranging from 0 to 5. The levels determine their caseness of clinical significance. Zero level being equivalent to non-case, levels 1 and 2 signifies sub-clinical case (condition) whereas level 3 and above signifies case of clinical significance. In general, syndromal level of three and above has corresponded closely to the clinical diagnosis derived by psychiatrists

***Stage 4:***

In the next stage, the syndrome cluster levels produced are compared. The decisions are based on hierarchical comparison, starting with organic and progressing to schizophrenia, affective disorders and neurotic disorders in that order. The initial outcome of this stage is the GMHAT-Full diagnosis. The diagnosis include organic disorders; schizophrenia; paranoid psychosis; schizoaffective disorders; types of mania; major depression and mixed affective disorder; substance abuse from drugs, tobacco, alcohol; eating disorders anorexia and bulimia nervosa; dysthymia, the common neurotic disorders; post-traumatic stress; adjustment disorder and dissociative disorder. GMHAT-Full also included diagnosis of personality disorders derived from the Personality Disorder section of the GMHAT as well as learning disorder (mental retardation derived from historical data and clinical observation).

GMHAT- All-AGECAT diagnostic system assigns a main diagnosis as well as additional and subsidiary diagnosis based on all syndrome levels that have reached three and above levels. This is useful in clinical settings as many patients have co-morbidity that needs tracing in their clinical management.



An algorithm for risk assessment based on all potential risk factors identified in history, mental state and risk assessment sections of the GMHAT was developed that produces risk levels as well as risk indicators.

A quality of life scale has also been developed based on clinical physical health and psychosocial factors.

### **5.3 The GMHAT/Full Output**

The GMHAT full program provides a number of outputs in different formats. These include

1. Past mental health questions positive rating list
2. Mental state examination positive rating list
3. GMHAT syndromal levels which come in a list view and a chart view format
4. GMHAT diagnosis
5. Area of need questions positive rating list
6. Quality of Life questions positive rating list
7. Quality of Life score card

- Past mental health questions positive rating list

This provides an output based on the positive scores derived for the historical questions. This output provides a quick summary of the positive historical factors that may have an impact on the current presentation.

- Mental state examination positive rating list

This output provides a list of the symptom questions answered positively with the rating scores. Appendix 2 provides an example of the output template

- GMHAT syndromal levels

GMHAT syndromal levels come in a list view and a chart view format. The GMHAT algorithm clubs the symptoms under 22 syndromal levels. Of these 2 syndromal levels mania and depression have further 3 levels. The syndromal diagnoses are scored on a scale of 0 to 5 with 0 being equivalent to no case and 5 being a case with high degree of certainty.

These syndromal levels can also be produced in a chart view which provides a visual output in the form of a bar chart.

- GMHAT diagnosis

The computer runs the All-AGECAT program to provide a differential diagnosis. This includes a main, alternative and co-morbid diagnoses if relevant. It will confirm whether or not the condition fulfils ICD 10 criteria. In all, over 60 potential diagnoses are available. The criterion on which the GMHAT FULL diagnosis is based is that of a case for which a psychiatrist would consider intervention appropriate. This may not always accord with an ICD 10 or a DSM IV diagnosis both of which were aimed at improving diagnostic reliability between psychiatrists and therefore tend to select fully formed cases. Clinicians seeking to relieve patient suffering generally wish to rely upon a wider definition of a case which would avoid the awkward situation of "sub-syndromal cases". For the purposes of statistical recording GMHAT FULL will inform the interviewer whether ICD 10 criteria are satisfied.

- Area of need questions positive rating list

This output gives a list of the questions pertaining to the ten areas of need that are explored.

- Quality of Life questions positive rating list

This output gives a list of the areas of satisfaction that are positively rated

- Quality of Life score card

This section clubs the Quality of Life questions under 4 categories. These include

- Physical health issues
- Psychological health issues
- Social relations issues
- Environmental issues

The questions have been given certain weighting so as to give an overall score of one to hundred in each of these areas.

#### **5.4 The GMHAT/Full Report**

The GMHAT report (appendix 3) option prints out a letter of assessment with

- Details of problems,
- Information from all the subsections of the assessment tool including the descriptive information written during the course of the interview
- Symptoms with severity from the mental state examination section
- A risk assessment
- Summary of investigations
- Clinical diagnosis
- Areas of need with a list of unmet needs, level of ongoing difficulties and level of satisfaction
- Any other information including third party information gathered
- Care plan
- Risk management plan
- Follow up details.

## **PART III:**

### **THE RESEARCH PROJECT**

## **Chapter 6**

### **6.0 Introduction**

A case identification of psychiatric illness mainly rests on the psychiatric interview. The reliability of the interview is therefore crucial.

John Wing et al describe five main stages at which unreliability or unpredictability can enter into the process of psychiatric diagnosis (137). They are

1. At the stage of defining symptoms, if clinicians adopt different definitions of important symptoms
2. At the stage of interviewing participants, if a standard procedure is not adopted
3. At the stage of classification of symptoms, if a set of classifying rules that will result in any given symptom profile being allocated to the same class is not available.
4. At a stage where a decision has to be made if other clinical information (for example, symptoms elicited in the previous episodes) should also be used at arriving at a diagnosis, if a set of further classifying rules that will decide if the symptom profile should be combined into one class and if so how is not available.
5. The final area is the fact that psychiatric classification is only partly based on descriptive syndromes and the presence or absence of aetiological factors is also important.

### **6.1 Outline of research studies**

John Helzer explains that as with any set of measurements, there is a certain degree of variance from one patient interview to the other. Among all these variance there is

one which is a chance phenomenon which is unpredictable and not a result of determinable systematic factors and is called the “error variance”. This may arise from factors such as lack of attentiveness or variations in memory of the patient or differences in the judgment and interpretation on the part of the physician. The degree of reliability is the proportion of the error variance to the total variance (138, 139). Spitzer and Fleiss have noted: “There is no guarantee that a reliable system is valid but assuredly an unreliable system must be invalid” (138)

There is a wide variation in the methodology, study design and the quantification of agreement in the numerous reliability studies on mental health assessment instruments (138, 148). There are several ways in which the reliability of a tool can be established. Two methods of reliability, inter-rater reliability and test-retest reliability are carried out in this study. This study also examines the concurrent validity of the GMHAT/Full diagnosis. This research project therefore consists of three studies assessing reliability of the interview ratings (measurement of psychopathology) and validity of the GMHAT-Full based All-AGECAT computer assisted diagnosis.

## **6.2 Ethical procedures**

The views of service user representative were sought during the design phase of the study. Ethical approval for the study was sought from the Cheshire Research Ethics Committee. The participants who agreed to participate in the study were provided written leaflets outlining the study. They also had the opportunity to discuss any issues regarding the study with the principal investigator (MMO). The participants provided a written consent to the study.

## **Chapter 7**

### **7.0: Study 1**

#### **Test-retest reliability of the GMHAT/Full**

### **7.1 Introduction**

Test-retest reliability or repeatability is the variation in measurements taken by a single person or instrument on the same item and under the same conditions. Test-retest reliability is desirable in measures of constructs that are not expected to change over time. For example, if you use a certain method to measure an adult's height, and then do the same again two years later, you would expect a very high correlation; if the results differed by a great deal, you would suspect that the measure was inaccurate. Similar expectations can be applied to certain inherent traits such as personality traits which are expected to change only very slowly (139).

In contrast, if the attempt was to measure changeable conditions such as mood the expectation would be to achieve only moderate test-retest reliability, since people's moods are expected to change from day to day. In this context very high test-retest reliability would be bad, since it would suggest that the variability and changes were not being picked up.

The Guidelines for Evaluating and Expressing the Uncertainty of National Institute of Standards and Technology (NIST) Measurement Results (140), states that the following conditions need to be fulfilled in the establishment of repeatability:

- the same measurement procedure
- the same observer

- the same measuring instrument, used under the same conditions
- the same location
- repetition over a short period of time.

A rater or a tool with high test-retest reliability is said to be reliable.

## **7.2 Aims and objectives**

The mental state examination of the GMHAT/Full has items such as historical data which would be expected to remain stable over a period of time. Certain symptoms such as psychotic symptoms and cognitive problems would be expected to remain reasonably stable over short periods of time. Certain other symptoms assessed in the mental state examination are expected to vary within short time frames such as mood, anxiety and concentration.

The aim of this study was to analyse the test-retest reliability of the questions in the mental state examination section of the Global Mental Health Assessment Tool/Full Version.

The objective was to assess the level of agreement between the initial and retest data. If any variability in the test and retest results were noted then the aim was to identify if there was any specific pattern to this variability.



## 7.3 Methods

### 7.31 *Study design*

The challenges in designing a study to assess the test-retest reliability in tools such as the GMHAT/Full are discussed in chapter 10. The test-retest study was designed to take into account some of the challenges identified. In this study the participants who were interviewed using the GMHAT/Full were invited for a second interview by the same interviewer (author). The participants were informed that the two interviews were not an attempt to test their memory but part of a methodological investigation designed to examine how well the interview worked and was able to pick up any changes in their presentation. Therefore, they were requested to answer the questions to the best of their ability in each assessment, and not assume that symptoms they had reported in the first interview did not need to be reported again in the second.

The time frame for the repeat interview was set at one to four weeks following the first interview. This time frame was determined based on the following reasons

- minimise the impact of any significant change to the mental state of the patient being interviewed.
- the questions in the mental state examination took into account the presentation in the last 4 weeks and not just the present state.
- the timeframe was deemed reasonably sufficient for both the participant and the interviewer not to remember the exact answers provided at the first interview.
- practical reasons as the interviewer(author) could not guarantee that the participants can always be interviewed in a fixed time frame.

This could be either due to the participants' unavailability or due to the authors' unavailability due to other clinical commitments.

The benefits of this design was that it would fulfil all the criteria set by the NIST guidelines and also take away the variability created by two interviewers interviewing the same participant as discussed in chapter 10.

### **7.32 Study Sample**

All the participants in this study were inpatients at an adult mental health unit. The participants were selected using convenience sampling. Convenience sampling is a type of non-probability sampling which involves the participants being drawn from that part of the population which is close to hand (141). That is, participants are selected because they are readily available and convenient. Inpatients on the adult inpatient units were contacted by the team doctors or by the senior staff team. They were provided written information about the study and the participants who agreed had a further discussion with the author (MMO). All the participants then provided written consent to be part of the study.

In the present study thirty participants were recruited. A formal power calculation was not conducted to choose the sample size for the study. The number of participants was based on previous reliability studies of tools such as the Psychiatric Status Schedule (142), Present State Examination (143), DIS/CIDI (144) and computerised DSM-IV Version of the Munich- Composite International Diagnostic Interview (M-CIDI) (145). The numbers were also based on practical considerations. The number of participants in the test-retest reliability studies ranged from 25 for the

Psychiatric Status Schedule (142) to 60 for the Munich- Composite International Diagnostic Interview (M-CIDI) (145).

As the intention of the study was to test the reliability of the mental state examination section of the GMHAT/Full, it was deemed necessary to identify a test sample where the probability of positive symptomatology was high. Hence a hospital based sample was chosen. As the study was conducted by one interviewer with other clinical responsibilities convenience sampling methods were seen as a practical method to recruit participants due to the availability of the participants and the investigator. These practical issues were also factors in determining the number of participants in the study.

### **7.33 Study analyses**

The structure of the GMHAT is based on opening questions for each symptom cluster followed by questions regarding the other related symptoms, if the opening question was positive. The algorithm of the GMHAT is designed to aggregate the symptom level data into syndrome levels which then leads on to a diagnosis. The 122 questions which form 19 subsections aggregate and produce 22 syndromes. As the opening questions are asked in every interview I analysed the agreement for these questions in the first instance to establish the level of agreement at the symptom level. Once this was achieved I explored the agreement at the syndrome level.

Diagnostic concordance was calculated by using Cohen's Kappa coefficient (146, 147). Cohen's Kappa coefficient is a statistical measure of agreement for qualitative (categorical) items. As Cohen's Kappa coefficient takes into account the agreement

occurring by chance it is generally thought to be a more robust measure than simple percent agreement calculation.

The equation for Cohen's kappa (K) is:

$$K = \frac{P(A) - P(E)}{1 - P(E)}$$

where  $P(A)$  is the relative observed agreement among raters, and  $P(E)$  is the hypothetical probability of chance agreement. If the raters are in complete agreement then  $K = 1$ . If there is no agreement among the raters other than what would be expected by chance then  $K = 0$ . When there is a sufficiently high base rate of at least 10% the following convention was used to interpret the Kappa values. Kappa greater than 0.75 was interpreted as excellent agreement beyond chance and values of 0.40 or lower indicated poor agreements, with values in-between representing fair to good agreement (147).

The other statistical measures used included testing the Sensitivity, Specificity, Positive Predictive Value and Negative Predictive value of the compulsory questions.

### Sensitivity

Sensitivity measures the proportion of actual positives which are correctly identified as such (e.g. the percentage of participants who are correctly identified as having the symptom). This is also called the true positive rate.

$$\text{Sensitivity} = \frac{\text{Number of true positives}}{\text{Number of true positives} + \text{number of true negatives}}$$

### Specificity

Specificity measures the proportion of negatives which are correctly identified as such (e.g. the percentage of healthy people who are correctly identified as not having the symptom). This is also called the true negative rate.

$$\text{Specificity} = \frac{\text{Number of true negatives}}{\text{Number of true negatives} + \text{number of false positives}}$$

### Positive Predictive Value (PPV)

Positive Predictive Value is the proportion of positive test results that are true positives (such as correct diagnoses). It reflects the probability that a positive test reflects the underlying condition being tested for. Hence it is a critical measure of the performance of a diagnostic method.

$$\text{Positive Predictive Value} = \frac{\text{Number of true positives}}{\text{Number of true positives} + \text{False positives}}$$

### Negative Predictive Value (NPV)

Negative Predictive Value (NPV) is defined as the proportion of subjects with a negative test result who are correctly diagnosed. A high NPV for a given test means that when the test yields a negative result, it is most likely correct in its assessment. A high NPV means that the test only rarely misclassifies a sick person as being healthy.

Negative Predictive Value	=	$\frac{\text{Number of true negatives}}{\text{Number of true negatives} + \text{False negatives}}$
---------------------------	---	--

## 7.4 Results

The thirty participants who were interviewed ranged in age from 24 to 65 (mean age 46.3, Standard Deviation of 12.2). They consisted of 15 men ranging in age from 27 to 63 (mean age 45.1, Standard Deviation of 15.8) and 15 women ranging in age from 24 to 65 (mean age 47.4, Standard Deviation of 17.5). Demographically there were no significant differences among the group.

Appendix 4 provides a detailed working of the statistical analysis of the symptom level data and Appendix 5 provides analysis conducted at a syndromal level.

Table 7.1 sets out the level of agreement (Kappa), the 95% confidence interval (CI), the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of each of the compulsory questions (symptom level data).

**Table 7.1**

No.	Description	Kappa	95% CI	Sens.	Spec.	PPV	NPV
0	Worry	0.80	(0.59, 1.00)	0.94	1.00	1.00	0.93
2	Anxiety	0.66	(0.35, 0.97)	0.67	0.95	0.85	0.87
5	Anxiety	0.52	(0.09, 0.96)	0.50	0.96	0.75	0.88
11	Anxiety	0.51	(0.19, 0.83)	0.62	0.88	0.80	0.75
12	Concentration	0.59	(0.22, 0.96)	1.00	0.85	0.50	1.00
12A	Concentration	-0.09	(0.00, 0.78)	0.00	0.93	0.00	0.89

13	Concentration	0.70	(0.14, 1.00)	0.67	1.00	1.00	0.80
14	Depression	0.64	(0.36, 0.93)	0.62	1.00	1.00	0.77
17	Depression	0.61	(0.19, 1.00)	0.60	0.96	0.75	0.92
18	Depression	0.71	(0.33, 1.00)	0.75	0.96	0.75	0.96
19	Depression	0.71	(0.45, 0.97)	0.75	0.94	0.90	0.85
20	Depression	0.67	(0.36, 0.97)	0.60	1.00	1.00	0.83
21	Depression	0.73	(0.45, 1.00)	0.86	0.91	0.75	0.95
22	Depression	0.76	(0.50, 1.00)	0.70	1.00	1.00	0.87
23	Depression	0.86	(0.67, 1.00)	0.90	1.00	1.00	0.83
24	Suicide	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
25	Suicide	0.86	(0.67, 1.00)	0.92	0.94	0.92	0.94
28	Sleep	0.93	(0.80, 1.00)	1.00	0.94	0.93	1.00
34	Appetite	0.76	(0.44, 1.00)	0.67	1.00	1.00	0.92
35	Weight	0.89	(0.67, 1.00)	1.00	0.96	0.83	1.00
36	Libido	0.65	(0.00, 1.00)	1.00	0.97	0.50	1.00
44	Hypochondriasis	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
56	Phobias	0.52	(0.00, 1.00)	0.50	0.96	0.67	0.93
58	Phobias	0.65	(0.00, 1.00)	1.00	0.97	0.50	1.00
61	Phobias	0.83	(0.60, 1.00)	0.88	0.95	0.88	0.95
62	Mania	0.81	(0.56, 1.00)	0.86	0.96	0.86	0.96
63	Mania	0.78	(0.36, 1.00)	1.00	0.96	0.67	1.00
64	Mania	0.63	(0.14, 1.00)	1.00	0.93	0.50	1.00
70	Mania	0.91	(0.74, 1.00)	1.00	0.96	0.88	1.00
71	Thoughts	0.77	(0.52, 1.00)	0.89	0.90	0.80	0.95

72	Thoughts	0.73	(0.45, 1.00)	0.86	0.91	0.75	0.95
73	Thoughts	0.84	(0.63, 1.00)	0.89	0.95	0.89	0.95
74	Thoughts	0.92	(0.76, 1.00)	1.00	0.95	0.89	1.00
75	Thoughts	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
76	Thoughts	0.80	(0.59, 1.00)	0.93	0.88	0.87	0.93
78	Delusions	0.93	(0.80, 1.00)	1.00	0.94	0.92	1.00
80	Delusions	0.86	(0.68, 1.00)	0.85	1.00	1.00	0.89
92	Delusions	0.77	(0.52, 1.00)	0.90	0.89	0.95	0.80
93	Hallucinations	0.78	(0.54, 1.00)	0.90	0.90	0.82	0.95
96	Hallucinations	0.65	(0.00, 1.00)	0.50	1.00	1.00	0.97
97	Hallucinations	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
98	Hallucinations	0.65	(0.00, 1.00)	0.50	1.00	1.00	0.97
100	Hallucinations(P)	0.79	(0.56, 1.00)	0.83	0.94	0.91	0.89
102	Hallucinations(P)	0.78	(0.36, 1.00)	0.67	1.00	1.00	0.96
103	Hallucinations(P)	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
104	Hallucinations(P)	1.00	(1.00, 1.00)	1.00	1.00	1.00	1.00
105	Hallucinations(P)	0.71	(0.33,1.00)	0.75	0.96	0.75	0.96
121	Insight	0.93	(0.80, 1.00)	0.94	1.00	1.00	0.93
122	Memory	0.27	(0.00, 0.94)	0.50	0.89	0.25	0.96

Table 7.2 sets out the level of agreement (Kappa) and the 95% confidence interval (CI) for the syndromal levels.



**Table 7.2**

<b>Syndrome number</b>	<b>Description</b>	<b>Overall agreement</b>	<b>Kappa</b>	<b>95% confidence interval</b>
1	Organic	0.97	0.47	(0.00, 1.00)
2	Schizophrenia	0.93	0.86	(0.68, 1.00)
3a	Mania ML	0.95	0.74	(0.33,1.00)
3b	Mania MI	0.97	0.65	(0.00, 1.00)
3c	Mania MO	0.98	0.00	(0.00, 1.00)
4a	Major Depression	0.82	0.56	(0.22, 0.89)
4b	Dysthymia	0.98	0.65	(0.00, 1.00)
4c	Dysthymia Neurotic	1.00	Not calculated	-
5	Eating disorder – Anorexia	1.00	Not calculated	-
6	Eating disorder – Bulimia	1.00	Not calculated	-
7	Post Traumatic Stress Disorder	0.97	0.00	(0.00, 1.00)
8	Hypochondriasis	0.97	0.00	(0.00, 1.00)
9	Obsessive Compulsive disorder	0.97	0.46	(0.00, 1.00)
10	Generalised Anxiety Disorder	0.78	0.31	(0.00, 0.78)
11	Panic Disorder	0.90	0.67	(0.31, 1.00)
12	Phobic Disorder	0.93	0.46	(0.00, 1.00)
13	Personality disorder		Not calculated	
14	Substance abuse – Drugs	0.92	0.76	(0.47, 1.00)
15	Substance abuse – Alcohol	0.93	0.83	( 0.60, 1.00)
16	Substance abuse – Tobacco	0.98	0.95	(0.81, 1.00)
17	Dissociative Disorder	0.98	0.48	(0.00, 1.00)

18	Learning Difficulties	0.97	0.71	(0.16, 1.00)
19	Attention Deficit Disorder	1.00	1.00	(1.00, 1.00)
20	Autistic Spectrum Disorders	1.00	1.00	(1.00, 1.00)
21	Negative syndrome	0.93	0.70	(0.30, 1.00)
22	Delusional disorder	0.97	0.91	(0.73, 1.00)

## 7.5 Summary of findings

### *Symptom level data*

At the symptom level the mean Kappa is 0.77. The Kappa values range from 0.51 to 1.00. There were two questions with outlier Kappa values of -0.09 (question 12 A) and 0.27 (question 122).

Question 12 A is an optional question for people who find it difficult to answer question 12. Hence the numbers were low which explains the Kappa value. Kappa values for eating disorder, obsessions were not calculated as they were constants and there was not enough variability.

The symptoms that would be expected to show variability in the time space of the two interviews such as anxiety, symptoms of depression and concentration showed lower Kappa agreement. This is expected as these symptoms vary quickly over a short period of time. The symptoms that take longer to change such as thought disorders, delusions, hallucinations and manic symptoms showed a higher kappa agreement. The agreement for the rating of past symptoms was consistently high as this would not be expected to change other than by the participant's recollection of events or the interviewer's variability in rating these symptoms.

### ***Syndrome level data:***

The overall agreement across the syndromes was good with values ranging from 0.78 to 1.00. However due to the small numbers chance agreement will always be high. The mean kappa is 0.60 (ranging from 0.00 to 1.00) with wide confidence intervals.

A high level of reliability with high kappa values were obtained for syndromes such as Schizophrenia (0.86), Substance abuse – alcohol (0.83), Substance abuse – tobacco (0.95) and Delusional disorder (0.91) with reasonable confidence intervals. These are syndromes which are relatively stable and would be expected to provide a high level of agreement. Syndromes such as Depression (0.56) and Generalised anxiety disorder (0.31) showed lower Kappa values with reasonable confidence interval. A Kappa value could not be calculated for some of the syndromes (e.g. eating disorders and personality disorders) as these syndromes were not identified during the course of the study due to the small numbers.

## **Chapter 8**

### **8.0: Study 2**

#### **Inter-rater reliability of the GMHAT/Full**

##### **8.1 Introduction:**

Inter-rater reliability is the degree of agreement among raters statistically. This is a method by which the homogeneity or consensus among raters can be identified. This measure is useful in refining the tool by determining if a particular questionnaire is appropriate for measuring a particular variable. If various raters do not agree then the conclusions can be that either the questionnaire is defective or the raters need to be re-trained (148)

In studies involving other standardised tools various methodologies have been used to test the inter-rater reliability. These included raters rating an interview captured on tape (149) , live interviews where an interview conducted by one rater was observed and rated by a group of other raters (who also had the opportunity to clarify items if felt necessary) or a combination of both methods (150, 151).

##### **8.2 Aims and objectives:**

The aim of this study was to analyse the inter-rater reliability of the questions in the mental state examination section of the Global Mental Health Assessment Tool/Full Version.

The objective was to assess the level of agreement between the author and the other raters. If any variability in the results were noted then the objective was to identify if there was any specific pattern to this variability.

### **8.3 Methods:**

#### **8.31 *Study design:***

Tests of inter-rater reliability in the psychiatric literature fall broadly into two methodological types. Most commonly two or more raters observe the same interview either directly, from behind a one way mirror or through the observation of audio or videotapes of the actual interview. All the raters are basing their judgments on the same set of interactions. This is described as the interviewer/observer design. Less commonly a second design called the test/retest method is used. In this method the subjects are interviewed by different raters at different times (166).

In the present study the interviewer/observer design was adopted. The participants were administered the Global Mental Health Assessment Tool/Full Version by a pool of three interviewers. The interviewers are psychiatrists with varying experience. The author Mahesh M. Odiyoor (MMO) was a Specialist Registrar at the time with more than 5 years experience in Psychiatry. The other two interviewers included Prof. Vimal Kumar Sharma (VKS) and Prof. John Copeland (JC) with numerous years of experience in psychiatry. These interviews were video recorded. MMO was present at the interviews that were conducted by the other interviewers and independently rated the interviews. Depending on the severity of the pathology of the participants, the interview took 60 to 90 minutes to complete.

The recorded interviews were then independently rated by a pool of ten other clinicians using the Global Mental Health Assessment Tool/Full Version. All these clinicians were either Specialist Registrars or Associate Specialist doctors with each one having more than 5 years experience in Psychiatry. These clinicians were blind to

the ratings made by the first rater (MMO). The raters were given a short training in the use of the Global Mental Health Assessment Tool/Full Version. The training consisted of a half day theoretical training and scoring video tapes interviews previously administered by the author and receiving feedback.

### **8.32 Study sample**

The numbers of participants for this study are based on the calculation that to get a Kappa value of 0.7 at a power of 90% where positive caseness is 50% to 70%, the numbers required will be between 99 and 114 pair ratings.

In the current study fifteen participants were recruited. The participants were all inpatients at Clatterbridge hospital at the time. The participants were recruited from an inpatient setting as they would ideally need to present with active psychopathology in order to achieve a positive caseness of 50% to 70%. The number needed to assess would have been higher in a community set up which would have been difficult with the limited resources available to the researcher.

Inpatients on the adult inpatient units were contacted by the team doctors or by the senior staff team. They were provided written information about the study and the participants who agreed had a further discussion with the author (MMO). All the participants then provided written consent to be part of the study and for the interview to be video recorded.

The studies testing interrater reliability for other tools have used a varying number of participants. The studies on Present State examination have interviewed between 6

(150) to 123 (151). The number of participants in studies on CIDI have ranged from 109 (158) to 575 (159). Numbers were lower when the study was based in an inpatient/outpatient setting compared to higher numbers in community settings where the prevalence of illness is lower.

### **8.33 Study analyses:**

The ratings of the author (MMO) were taken as the standard and the ratings by the independent raters were then compared against these ratings to test the inter-rater reliability. The independent ratings by the clinicians were paired against the ratings of the author (MMO). This would have potentially yielded a maximum number of 150 paired ratings. The paired ratings were then statistically analysed.

Diagnostic concordance was calculated by using Cohen's Kappa coefficient (146, 147). The GMHAT algorithm combines the scores of the items on the mental state examination section of the tool into syndromal diagnosis. These syndromal diagnoses are allocated on a hierarchical order. The syndromal diagnoses are scored on a scale of 0 to 5 with 0 being equivalent to no case and 5 being a case with high degree of certainty.

The scores generated by the author (MMO) were taken as the standard. The scores generated by the clinicians rating the video interviews were taken as the comparator scores. As a first step all the scores were recoded to form 3 categories. These were termed

- No case
- Possible case
- Definite case

The scores were recoded in two ways to see if this would lead to significant differences in the overall findings

Recode 1:

- No case - 0
- Possible case - 1 and 2
- Definite case - 3, 4 and 5

Recode 2:

- No case - 0 and 1
- Possible case - 2
- Definite case - 3, 4 and 5

A Cohen's weighted Kappa (152) was used as a measure of agreement. Weighted kappa allows the use of weights to describe the closeness of agreement between categories (153).

The equation for Cohen's kappa (K) is:

$$K = \frac{P(O) - P(E)}{1 - P(E)}$$

in which  $P(O)$  is the proportion weighted observed agreement, and  $P(E)$  is the proportion weighted chance agreement.

The linearly weighted Kappa is determined by a specific weight matrix in which each weight is calculated by the following rule:



$$W_{ij}=1-\{i-j/ c-1\}$$

with c being the total number of response categories.

The Cohen's Weighted Kappa measure has a twofold advantage.

- Firstly the chance agreement which varies widely with incidence is specifically discounted. This allows for a more meaningful comparison to be made for items where the incidence differs.
- Secondly weights can be assigned to different disagreements in such a way as to convey their relative importance.

In this instance a higher weighting was given where the disagreement was between 'no case' and 'definite case' compared to the lesser disagreement between 'no case' and 'possible case' or between 'possible case' and 'definite case'.

Kappa has a value of 1.0 if there is perfect agreement and a value of 0.0 if the agreement is no better than chance. When there is a sufficiently high base rate of at least 10% the following convention was used to interpret the Kappa values. Kappa greater than 0.75 was interpreted as excellent agreement beyond chance and values of 0.40 or lower indicated poor agreements, with values in-between representing fair to good agreement (81).

## 8.4 Results

The fifteen participants who were interviewed ranged in age from 23 to 64 (mean 47.1, Standard Deviation of 13.3). They consisted of 7 men age ranging from 23 to 62 (mean 43.3, Standard Deviation of 15.0) and 8 women age ranging from 38 to 64 (mean 51.6, Standard Deviation of 9.1). The men participating were slightly younger compared to women. Otherwise demographically there were no significant differences among the group.

Each of the interviews was independently rated by 4 to 10 clinicians. These ratings were then paired with ratings by the author (MMO) to form 99 pairs of ratings.

Table 8.1 gives a summary of the syndromal level ratings for the assessment conducted by the author (MMO), the diagnosis generated by the GMHAT algorithm and the clinicians' diagnosis.

**Table 8.1**

Syndromal scores with GMHAT and clinicians diagnosis

No.	Syndromes from primary investigator interview associated with positive and negative agreement	GMHAT Primary Alternative and Subsidiary diagnosis	Primary clinician diagnosis
1	Schizophrenia & Paranoia - 4 Major Depression - 4 General Anxiety disorder – 0 Panic Disorder – 4 Phobic disorder – 0	Schizophrenia (moderate degree of certainty): Moderate  Panic Disorder - Moderate Substance misuse – Tobacco Substance Misuse - Alcohol dependence(Physical & Social	Schizoaffective disorder, depressive type  Mental & behavioural disorder due to use of alcohol: other mental & behavioural Disorder

	Substance Abuse –Alcohol – 5 Substance Abuse –Tobacco – 3	damage)	
2	Schizophrenia & Paranoia – 1 Major Depression - 4 General Anxiety disorder – 4 Panic Disorder – 4 Delusional disorder – 4	Major Depression (Bipolar) (Recurrent) :Moderate  Adjustment disorder  General anxiety disorder with panic attacks  Substance misuse – Tobacco (problem smoking)	Paranoid Schizophrenia
3	Schizophrenia & Paranoia – 4 Major Depression - 4 Substance Abuse – Drugs – 3 Learning Difficulty- 3 Delusional disorder - 4	Schizophrenia (moderate degree of certainty): Moderate  Physical problems  Learning Difficulty  Substance Misuse - Cannabis (misuse a problem)  Paranoid personality disorder  Schizoid personality disorder	Paranoid Schizophrenia  Delusional disorder
4	Schizophrenia & Paranoia – 4 Major Depression - 4 Panic Disorder – 4 Phobic disorder – 4 Paranoid personality disorder – 3	Schizophrenia (moderate degree of certainty): Moderate  Adjustment disorder  Panic disorder – Moderate  Paranoid personality disorder	Paranoid Schizophrenia  Generalised anxiety with Panic attacks
5	Schizophrenia & Paranoia – 5 Major Depression - 3 Substance Abuse –Alcohol – 3 Delusional disorder – 3	Schizophrenia (High degree of certainty): Severe  Substance Misuse - Alcohol dependence  Anxious personality trait	Paranoid Schizophrenia  Excessive and harmful use of alcohol
6	Major Depression - 4 Panic Disorder – 5 Phobic disorder – 0	Major Depression (Recurrent) :Moderate  Panic disorder – Severe  Psychosexual disorder  Anxious personality disorder  Dependent personality disorder	Recurrent Depressive disorder current episode severe depression without psychotic Symptoms  Panic Disorder without Agoraphobia  Anxious Avoidant personality traits

7	Major Depression - 4 General Anxiety disorder - 5	Major Depression (Bipolar ) (Recurrent) :Moderate  General anxiety disorder  Anxious personality disorder	Bipolar Affective Disorder - Current episode Mixed  Anxious Avoidant personality Traits
8	Major Depression - 4 General Anxiety disorder – 5 Panic Disorder – 5 Substance Abuse –Tobacco – 3 Emotionally Unstable personality disorder - 3	Major Depression (Recurrent) :Moderate  General anxiety disorder with panic attacks  Physical problems  Psychosexual disorder  Substance misuse – Tobacco  Emotionally Unstable personality disorder	Emotionally Unstable personality disorder  Generalised Anxiety Disorder
9	Schizophrenia & Paranoia – 5 Major Depression - 3 Delusional disorder – 3	Schizophrenia (High degree of certainty): Severe	Paranoid Schizophrenia
10	Major Depression - 3 Delusional disorder – 3	Major Depression (Recurrent) :Mild  Delusional disorder	Bipolar affective disorder, current episode mixed  Organic delusional [schizophrenia-like] disorder
11	Major Depression - 4 Panic Disorder – 5 Substance Abuse –Alcohol – 5 Negative syndrome – 3 Delusional disorder - 4	Major Depression: Moderate  Adjustment disorder  Panic disorder – Moderate  Substance Misuse - Alcohol dependence(Physical & Social damage)  Dissocial personality trait  Anxious personality trait	Severe Depressive episode with Psychotic symptoms  Adjustment disorder  Excessive and harmful use of alcohol
12	Major Depression - 3 Panic Disorder – 3 Phobic disorder - 4	Major Depression (Recurrent) :Mild  Panic disorder – Mild Agoraphobia  Post Traumatic Stress disorder (probably too low)  Physical problems	Recurrent depressive disorder with current episode of severe depression without psychotic symptoms  Mixed Anxiety and depressive disorder  Anxious (Avoidant)

		Psychosexual disorder Substance misuse – Tobacco (problem smoking) Obsessive personality disorder Anxious personality disorder	personality Anankastic personality
13	Schizophrenia & Paranoia – 4 Mania ML- 5 Delusional disorder - 4	Schizophrenia (moderate degree of certainty): Moderate Substance misuse – Tobacco (problem smoking) Emotionally Unstable personality disorder	Bipolar affective disorder current episode severe mania with psychotic symptoms Emotionally Unstable personality traits
14	Organic – 3 Substance Abuse –Alcohol – 5	Physical problems Substance Misuse - Alcohol dependence(Physical & Social damage)	Mental and behavioural problems due to Alcohol - Amnesic syndrome Mental and behavioural problems due to Alcohol – Dependence
15	Schizophrenia & Paranoia - 4 Substance Abuse –Tobacco – 3 Delusional disorder - 3	Schizophrenia (moderate degree of certainty): Moderate Substance misuse – Tobacco	Paranoid Schizophrenia Schizoaffective disorder – unspecified

Table 8.2 gives the Kappa agreement and the 95% confidence interval at the syndromal level. The details of the statistical analysis are provided in Appendix 6.

**Table 8.2**

Overall syndromal level agreement

No.	Syndrome	Weighted Kappa	95% Confidence interval
1	Organic	0.52	(0.29, 0.75)
2	Schizophrenia & Paranoia	0.82	(0.70, 0.93)
3a	Mania ML	0.86	(0.67, 1.00)
3b	Mania MI	N/A	

3c	Mania MO	N/A	
4a	Major depression	N/A	
4b	Dysthymia	N/A	
4c	Dysthymia neurotic	N/A	
5	Eating Disorder Anorexia	N/A	
6	Eating Disorder Bulimia	N/A	
7	Post - Traumatic Stress Disorder	N/A	
8	Hypochondriasis	N/A	
9	Obsessional Compulsive Disorder	N/A	
10	General Anxiety Disorder	0.54	(0.31, 0.72)
11	Panic Disorder	N/A	
12	Phobia Disorder	0.62	(0.44, 0.81)
13	Personality disorder	N/A	
14	Substance Abuse – Drugs	N/A	
15	Substance Abuse – Alcohol	0.95	(0.88, 1.00)
16	Substance Abuse – Tobacco	N/A	
17	Dissociative Disorder	N/A	
18	Learning Difficulty	0.58	(0.30, 0.86)
19	Attention Deficit Disorder	N/A	
20	Autism Spectrum Disorder	N/A	
21	Negative Syndrome	0.66	(0.45, 0.88)
22	Delusional Disorder	N/A	

Table 8.3 gives the overall Kappa agreement for each case and the 95% confidence interval. This has the agreement for both the recodes as mentioned above. The details of the statistical analysis are provided in Appendix 7 (recode 1) and Appendix 8 (recode 2).

**Table 8.3**

Comparison of Inter-rater agreement of the syndromes for each case - 2 recodes

Case no.	Overall Kappa Recode 1	95% confidence interval	Overall Kappa Recode 2	95% confidence interval
1	0.66	(0.56, 0.75)	0.70	(0.60, 0.79)
2	0.83	(0.75, 0.92)	0.85	(0.76, 0.93)
3	0.81	(0.72, 0.90)	0.85	(0.76, 0.94)
4	0.84	(0.76, 0.92)	0.84	(0.76, 0.92)
5	0.90	(0.81, 0.98)	0.87	(0.78, 0.97)
6	0.69	(0.53, 0.85)	0.60	(0.41, 0.78)
7	0.81	(0.69, 0.93)	0.82	(0.71, 0.94)
8	0.71	(0.60, 0.82)	0.71	(0.60, 0.82)
9	0.89	(0.78, 1.00)	0.99	(0.97, 1.00)
10	0.96	(0.89, 1.00)	0.94	(0.83, 1.00)
11	0.75	(0.63, 0.86)	0.69	(0.55, 0.83)
12	0.93	(0.85, 1.00)	0.92	(0.84, 1.00)
13	0.79	(0.65, 0.93)	0.81	(0.67, 0.95)
14	0.80	(0.60, 0.99)	0.80	(0.60, 0.99)
15	0.90	(0.79, 1.00)	0.87	(0.73, 1.00)

## **8.5 Summary of findings**

The first step was to correlate the syndromes generated, the weighting given to each one of them and the GMHAT/Full diagnosis generated by the algorithm to assess if there was a good correlation between them. The assessment of the syndromes to the GMHAT/Full diagnosis generated showed a good correlation. This was possible for only a few diagnoses due to the small numbers of participants. The correlation was particularly good for conditions such as schizophrenia and major depression.

The next step was to assess agreement between the raters at each syndromal level. It was possible to obtain a weighted Kappa on only eight syndromes due to the limited spread of syndromes across the small number of cases. The Kappa where obtained ranged from 0.52 to 0.95. The most agreement was for syndromes such as substance abuse – alcohol (0.95), mania (0.86) and schizophrenia (0.82) and least for organic (0.52) and general anxiety disorder (0.54).

I subsequently assessed the overall agreement at the syndromal level in each case. As described above the scores were recoded in two ways and assessed to see if there was any change to the overall results due to the recoding.

The mean Kappa scores of the data from the recode 1 was 0.82 with individual cases varying from 0.66 to 0.96 (recode 1, table 8.1). The mean Kappa score for the data from Recode 2 was also 0.82 with individual cases varying from 0.60 to 0.99 (recode 2, table 8.2). Overall the Kappa agreement is very good. However they have a wide range of confidence interval (CI) due to the lower numbers.



When the agreement is correlated to the diagnosis of each of the cases the agreement for a psychotic condition such as paranoid schizophrenia was always consistently high. However when this was associated with a mood disorder such as schizoaffective disorders the agreement level reduced. Among the affective disorders the agreement for bipolar affective disorder was consistently high though the agreement for depressive disorders varied.

## **Chapter 9**

### **9.0: Study 3**

#### **Validity of the GMHAT/Full**

##### **9.1 Introduction**

Validity of a measurement tool is defined as the extent to which a measurement tool is well-founded and corresponds accurately to the real world. The validity of a measurement tool is considered to be the degree to which the tool measures what it claims to measure (160).

There are two main types of validity, internal validity and external validity.

*Internal validity* refers to the validity of the measurement and test itself. An evaluation of validity of any measurement can be affected by flaws within the study itself such as not controlling some of the major variables (a design problem), or problems with the research instrument (a data collection problem). There are 4 main types of validity used when assessing internal validity. Each type views validity from a different perspective and evaluates different relationships between measurements.

- Face validity - This refers to whether a technique looks as if it should measure the variable it intends to measure.
- Concurrent validity - This compares the results from a new measurement technique to those of a more established technique that claims to measure the same variable to see if they are associated.
- Predictive validity - This is when the results obtained from measuring a construct can accurately be used to predict behaviour.

- Construct validity - This is whether the measurements of a variable in a study behave in exactly the same way as the variable itself.

*External validity* refers to the ability to generalise the findings to the target population. A major factor in this is whether the study sample (e.g. the research participants) is representative of the general population along relevant dimensions.

Both are very important in analysing the appropriateness, meaningfulness and usefulness of a research study.

## **9.2 Aims and Objectives**

The aim of this study was to analyse the validity of the diagnosis generated by the Global Mental Health Assessment Tool/Full Version thus establishing the validity of the mental state examination section of the tool.

The *primary* objective was to assess the level of agreement between the diagnoses generated by the ALL-AGECAT algorithm of the Global Mental Health Assessment Tool/Full Version and the CATEGO -10 algorithms of the SCAN assessment tool which was agreed as the ‘Gold standard’ for this study. The *secondary* objective was to analyse the level of agreement between the diagnoses generated by both the tools and the independent diagnosis generated by the clinicians following the interviews. The *tertiary* objective was to analyse the relationship between the syndromal scores and the diagnosis generated by the ALL-AGECAT algorithm of the Global Mental Health Assessment Tool/Full Version.

The intention of the questions in the mental state examination section of the Global Mental Health Assessment Tool/Full Version is to explore a wide range of underlying mental states which are scored according to their presence and severity. The ALL-AGECAT algorithm then combines the scores of the items on the mental state examination section into syndromal diagnosis. These syndromal diagnoses are allocated on a hierarchical order which then lead to a diagnosis. Hence it is important that the scores generated by the questions in the mental state examination section are able to generate the correct syndromes to describe the underlying condition and that the syndromes are then able to generate an appropriate diagnosis.

### **9.3 Method**

#### **9.31 *Study design***

A variety of methods have been used to assess the validity of available assessment tools. There have been studies looking at descriptive validity (151), procedural validity (65, 94), construct validity (161), and concurrent validity (94). The validity of a diagnostic assessment technique is generally measured by determining the concurrent validity or the agreement between the diagnoses made by the assessment technique and some hypothetical "gold standard." Unfortunately, a gold standard for psychiatric diagnoses remains elusive. Ordinary clinical diagnoses could be used as the standard though there are inherent limitations of an unstructured clinical interview. In the current study we agreed to use the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) as the "gold standard" as it is a comparable, validated and widely used tool. It was also agreed to compare the diagnosis generated by the Global Mental Health Assessment Tool/Full Version with the independent clinical diagnoses generated by the clinicians as a secondary measure.

As discussed in chapter 3 the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) is a reliable and validated tool. The SCAN tool is made up of Present State Examination (PSE-10), Item group checklist (IGCLIST) and Clinical History Schedule (CHS). The Present State Examination (PSE- 10) is a schedule that structures the clinical examination and provides ratings of each symptom and sign. There are 2 parts to PSE-10. Part I includes non-psychotic sections and Part II includes psychotic and other sections. The Item group checklist (IGCLIST) has 59 item groups which are rated directly. The information is derived from case records, clinicians and other informants. The Clinical History Schedule (CHS) contains summary items on personality disorders, social disablement and clinical diagnosis. Information is obtained from the same sources as for IGCLIST.

The information gathered and scored is processed and analysed by the CATEGO or CAPSE10 programs and produce a variety of outputs.

The participants were administered the GMHAT as well as the SCAN interview schedules. The order of the interviews were varied with some participants being interviewed with the GMHAT interview schedule first followed by the SCAN interview schedule and the others in a vice versa order. The time interval between the 2 interviews ranged from one to four weeks.

The GMHAT interviews were conducted by 4 Psychiatrists. They included 2 Senior Psychiatric trainees Dr. Soumya Krishna (SK), Dr. Vikram Palanisamy (VP), a speciality doctor Dr. Kalyani Srinivasan (KS) and an Emeritus Professor of

Psychiatry Prof. John Copeland (JC) all with a minimum of 5 years of experience in Psychiatry. These participants were then interviewed using Schedule for Clinical Assessment in Neuropsychiatry (SCAN) by the author (MMO).

### **9.32 Study sample**

In the present study fifty participants were recruited. A formal power calculation was not conducted to choose the sample size for the study. All the participants were inpatients at an adult mental health unit. The number of participants was determined as they were being recruited from a setting with higher incidence of mental illness and practical considerations (including limited resources, small number of examiners and time limitations due to clinical commitments). The numbers of participants in previous studies to validate other assessment tools were also used as a guide. The numbers of participants have been very variable and have depended on the study setting (community vs inpatient), duration of the assessment and resources available. A study comparing Present State Examination (PSE) with the composite international diagnostic interview (CIDI) (161) had 30 participants, a study comparing structured clinical interview for DSM-III-R (SCID) and clinical diagnoses had 100 participants (163), another study testing the validity of the Mini-International Neuropsychiatric interview (M.I.N.I) (164) which takes about 15 minutes to complete had 636 subjects in the study.

The participants were selected using convenience sampling. As mentioned before convenience sampling is a type of non-probability sampling which involves the

participants being drawn from that part of the population which is close to hand (141). All the participants provided written consent to be part of the study.

### **9.33 Study analyses**

A variety of methods have been used to analyse the data generated in validity studies of different assessment tools in the past. Some studies have used various statistical analyses whereas others have given a descriptive analysis of the data. These include

- comparing diagnosis generated by the assessment tool against the clinician generated diagnosis (151, 65)
- comparing the diagnostic hierarchy (162).

In this study the diagnosis generated by the clinicians and the tools were assigned an ICD-10 code. I then analysed the data in four ways

- GMHAT computer diagnosis Vs SCAN computer diagnosis
- GMHAT computer diagnosis Vs GMHAT Clinician diagnosis
- SCAN computer diagnosis Vs SCAN clinician diagnosis
- GMHAT clinician diagnosis Vs SCAN clinician diagnosis

Initially I looked at the data descriptively. This was to explore the conditions where there was a good agreement or significant disagreement between diagnosis generated by the clinicians and the diagnosis generated by the computer algorithms.

Following the descriptive assessment of the data I looked at the level of agreement in the diagnosis within the groups described above and categorised them into 4 groups. I assigned a score to each group as below

- *Complete* = 3 (agreement in the primary diagnosis to the 3<sup>rd</sup> digit of the F code in ICD 10 e.g. F 30.3)
- *Partial* = 2 (agreement in the primary diagnosis to the 2<sup>nd</sup> digit of the F code in ICD 10 e.g. F30 or agreement between primary and secondary diagnosis)
- *Weak* = 1 (agreement only of the secondary diagnosis)
- *None* = 0 (no agreement)

This method gave a numerical value to the level of agreement between the clinicians and the diagnosis generated by the respective tools they used in the groups described above. The agreement was then summarised as a bar chart. No specific statistical analyses were conducted due to the small numbers of participants and the limited spread of the diagnoses.

Along with analysing the agreement on the diagnoses as described above I also analysed the agreement between the syndromal level scores generated by the ALL-AGECAT algorithm following the GMHAT interview with the diagnoses generated by the tool at the end.

The ALL-AGECAT algorithm combines the scores of the items on the mental state examination section of the tool into syndromal diagnosis as discussed in chapter 8.

The syndromal diagnoses are allocated on a hierarchical order. In the next phase group scores are compared with the hierarchy derived from clinical judgement to produce a level of confidence on the syndrome clusters. The higher levels denote increasing confidence. In the next stage, that is stage two of the ALL-AGECAT



GMHAT, the syndrome cluster levels produced at stage one are compared. The decisions are based on hierarchical comparison, starting with organic and progressing to schizophrenia, affective disorders and neurotic disorders in that order. The initial outcome of stage two is the diagnosis.

In general, levels of three and above have corresponded closely to the ACE definition employed by psychiatrists.

GMHAT diagnostic system assigns a main diagnosis as well as additional and subsidiary diagnosis based on all syndrome levels that have reached three and above levels. This is quite useful in clinical settings as many patients have co-morbidity that needs tracing in their clinical management.

The purpose of analysing the agreement between the syndromal level scores generated by the ALL-AGECAT algorithm following the GMHAT interview with the diagnoses generated by the tool was to look for areas within the algorithm that may need to be addressed further to improve the level of agreement between the computer generated diagnosis and the Clinicians diagnosis.

#### **9.4 Results**

The fifty participants who were interviewed ranged in age from 22 to 64 (mean age 44.6, Standard Deviation of 11.8). They consisted of 30 men ranging in age from 23 to 64 (mean age 44.6, Standard Deviation of 11.7) and 20 women ranging in age from 22 to 64 (mean age 44.6, Standard Deviation of 12.3). Demographically there were no significant differences among the group.

### 9.41 Descriptive data

The diagnoses generated by the clinicians and the tools and their ICD 10 codes were analysed in four ways. A brief summary is provided below. The detailed descriptive data is provided in Appendix 9.

- GMHAT computer diagnosis Vs SCAN computer diagnosis

An example of the description of the primary and secondary diagnosis generated by the ALL-AGECAT algorithm of the GMHAT assessment and the diagnoses generated by the CATEGO -10 algorithms of the SCAN assessment tool is given below. See appendix 8, table 1 for the complete table of comparison.

		<b>GMHAT computer</b>	<b>F code</b>	<b>SCAN computer</b>	<b>F code</b>
1	Primary	Substance Misuse – Alcohol dependence (Physical & Social damage)	<b>F10.2</b>	Alcohol Dependence Syndrome	<b>F10.2</b>
	Secondary	Adjustment Disorder Post-traumatic stress disorder (probably - too low) Physical Problems	<b>F43.2</b> <b>F43.1</b>		

- GMHAT computer diagnosis Vs GMHAT Clinician diagnosis

An example of the description description of the primary and secondary diagnosis generated by the ALL-AGECAT algorithm of the GMHAT assessment and the diagnoses generated by the clinician following the assessment with GMHAT assessment tool using if necessary any further information not available in the GMHAT assessment tool is given below. See appendix 8, table 2 for the complete table of comparison.

		<b>GMHAT clinician</b>	<b>F code</b>	<b>GMHAT computer</b>	<b>F code</b>
1	Primary	Mental and behavioural disorder due to alcohol misuse - amnesic syndrome	<b>F10.6</b>	Substance Misuse – Alcohol dependence (Physical & Social damage)	<b>F10.2</b>
	Secondary			Adjustment Disorder Post-traumatic stress disorder (probably - too low) Physical Problems	<b>F43.2</b> <b>F43.1</b>

- SCAN computer Vs SCAN clinician diagnosis

An example of the description of the SCAN computer diagnosis generated by the CATEGO algorithm and the clinical diagnosis generated by the clinician following the completion of the assessment using if necessary any further information not available in the SCAN assessment tool is given below. See appendix 8, table 3 for the complete table of comparison.

		<b>SCAN clinician</b>	<b>F code</b>	<b>SCAN computer</b>	<b>F code</b>
1	Primary	Alcohol dependence - Amnesic Syndrome.	<b>F10.2</b>	Alcohol Dependence Syndrome	<b>F10.2</b>
	Secondary				

- GMHAT clinician diagnosis Vs SCAN clinician diagnosis

An example of the description of the primary and secondary diagnosis generated by the clinicians following the completion of the assessment using if necessary any further information not available in the following assessment with GMHAT or the SCAN assessment tools is given below. See appendix 8, table 4 for the complete table of comparison.

		<b>GMHAT clinician</b>	<b>F code</b>	<b>SCAN clinician</b>	<b>F code</b>
1	Primary	Mental and behavioural disorder due to alcohol misuse -amnesic syndrome	<b>F10.6</b>	Alcohol dependence – Amnesic Syndrome.	<b>F10.2</b>
	Secondary				

The participants mainly presented with the following conditions as the primary diagnosis:

- Psychotic disorders including Schizophrenia, Schizoaffective disorders and other psychosis.
- Mood disorders which included depression of varying severity, bipolar affective disorders and manic disorders
- Mental and behavioural disorder due to alcohol and other substances misuse
- Personality disorders

Generally there was a good agreement between the clinicians and the outputs following the use of the assessment tools. Disagreement when they occurred seemed to happen when

- psychotic illness with mood symptoms or negative symptoms
- the participant with an affective or psychotic disorder was in recovery
- currently the symptoms were in remission.
- the diagnosis was mental illness secondary to substance misuse

### 9.42 Numerical comparison of the data

Following the descriptive comparison of the diagnosis they were compared with each other and the level of agreement was categorised under 4 categories as below

- *Complete* = 3 (agreement in the primary diagnosis to the 3<sup>rd</sup> digit of the F code in ICD 10 e.g. F 30.3)
- *Partial* = 2 (agreement in the primary diagnosis to the 2<sup>nd</sup> digit of the F code in ICD 10 e.g. F30 or agreement between primary and secondary diagnosis)
- *Weak* = 1 (agreement only of the secondary diagnosis)
- *None* = 0 (no agreement)

Table 9.1 gives a summary of the levels of agreement within the 4 different groupings of the data as has been discussed.

**Table 9.1**

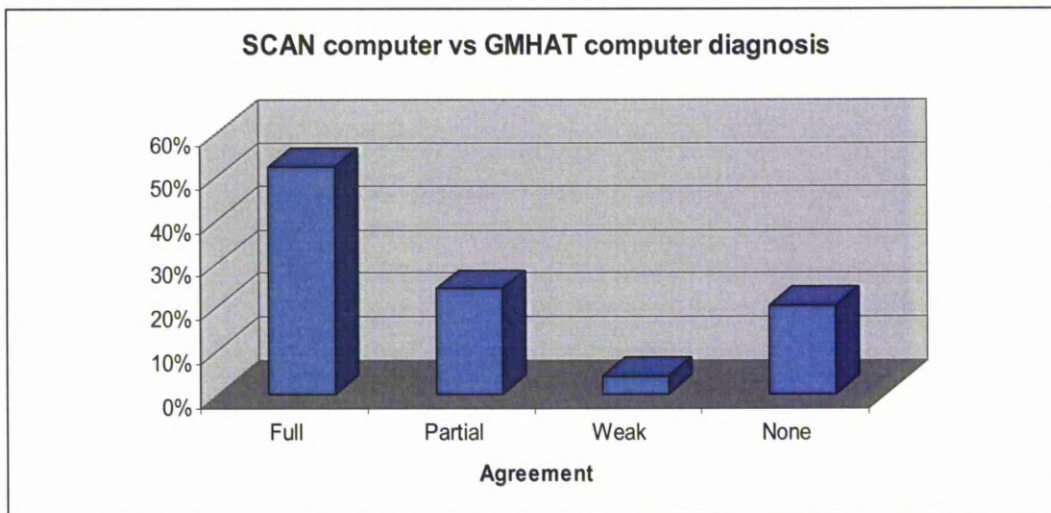
Case no.	SCAN computer Vs GMHAT computer	GMHAT computer Vs GMHAT clinician	SCAN computer Vs SCAN clinician	GMHAT clinician Vs SCAN clinician
1	3	3	3	3
2	2	3	2	3
3	3	3	3	3
4	2	2	3	3
5	0	1	2	3
6	3	2	3	2
7	3	2	2	3
8	3	2	2	1
9	0	0	3	3
10	2	2	3	2
11	2	3	2	2
12	3	2	2	3
13	0	2	0	3
14	3	2	2	2
15	3	2	3	2
16	2	3	0	3

17	3	0	0	3
18	1	2	0	1
19	2	3	1	3
20	3	3	3	3
21	3	3	3	2
22	0	2	0	2
23	3	2	3	2
24	0	0	3	0
25	0	0	3	3
26	3	0	3	3
27	2	3	3	0
28	2	2	0	2
29	2	3	2	3
30	3	3	3	3
31	0	0	0	0
32	3	3	3	3
33	3	3	3	3
34	0	0	3	3
35	3	3	3	3
36	3	3	3	3
37	2	2	0	2
38	1	0	0	2
39	3	3	3	3
40	-	-		-
41	3	3	3	3
42	2	2	2	2
43	3	3	3	2
44	0	0	2	2
45	2	3	2	3
46	3	2	2	2
47	3	3	3	3
48	3	3	2	3
49	3	3	3	3
50	3	3	2	2
51	0	0	3	0

The levels of agreement have been displayed as a bar chart for each of the groupings of data.

### ***SCAN computer diagnosis Vs GMHAT/Full computer diagnosis***

Figure 9.1 displays the level of agreement between the GMHAT/Full computer diagnoses generated by the ALL-AGECAT algorithm against the SCAN computer diagnosis generated by the CATEGO -10 algorithms.

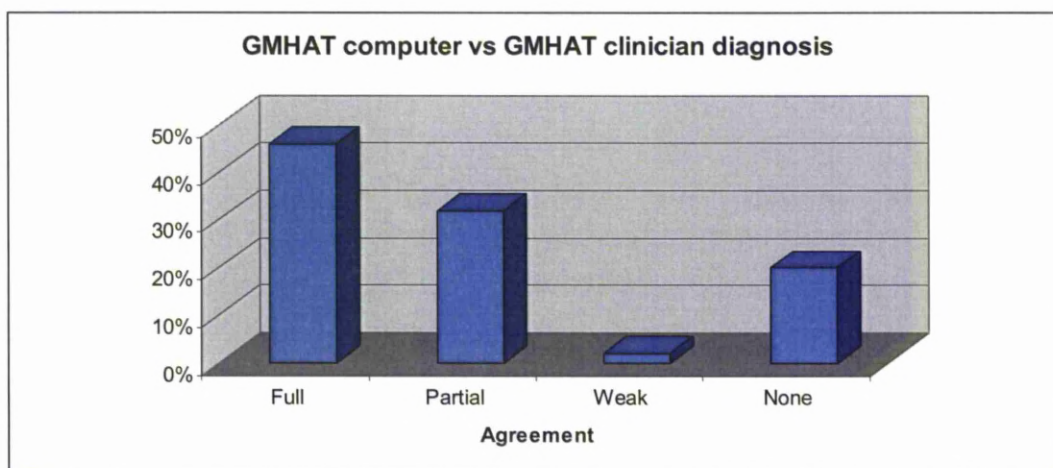


***Figure 9.1***

There was full or partial agreement in 76% of the overall assessments. There was no agreement between the diagnoses in 20% of the assessments. This is an overall very good level of agreement

### ***GMHAT/Full computer diagnosis Vs GMHAT/Full clinician diagnosis***

Figure 9.2 displays the level of agreement between the GMHAT/Full computer diagnosis generated by the ALL-AGECAT algorithm and the clinical diagnosis generated by the clinician following the completion of the assessment using if necessary any further information not available in the GMHAT/Full assessment tool.

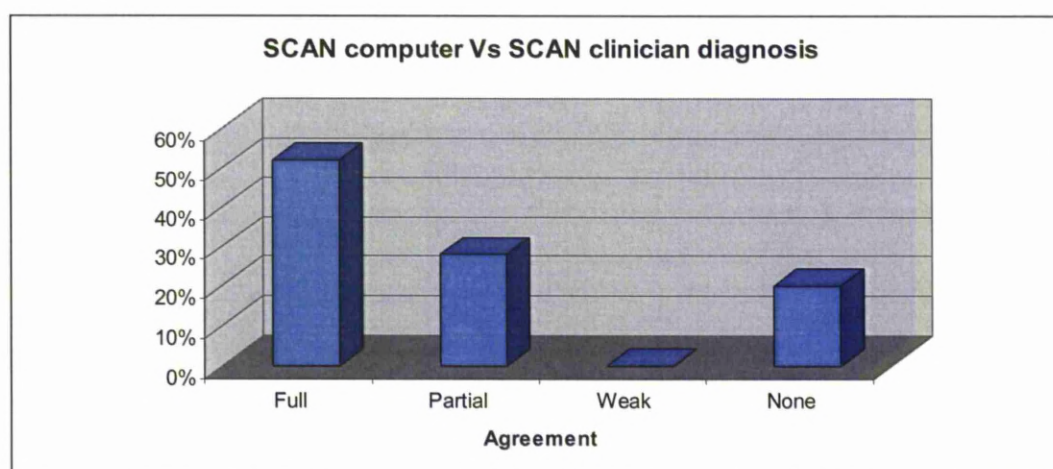


**Figure 9.2**

There was full or partial agreement in 78% of the assessments. There was no agreement in 20% of the assessments. Overall the level of agreement is very good.

#### ***SCAN computer diagnosis Vs SCAN clinician diagnosis***

Figure 9.3 displays the level of agreement between the SCAN computer diagnosis generated by the CATEGO algorithm and the clinical diagnosis generated by the clinician following the completion of the assessment using if necessary any further information not available in the SCAN assessment tool.



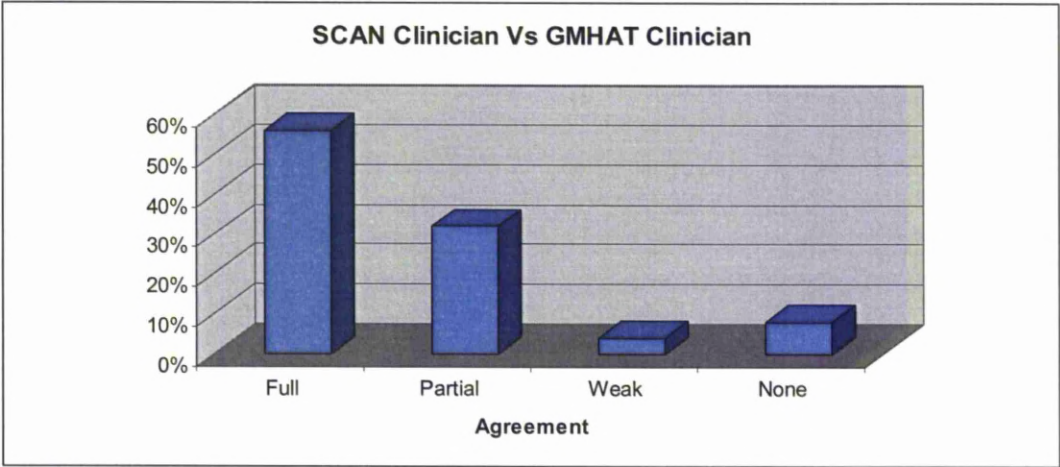
**Figure 9.3**



There was full or partial agreement in 80% of the assessments. There was no agreement in 20% of the assessments. The level of agreement between the clinicians and the computer generated diagnosis was excellent. However there was still a significant amount of disagreement which was only slightly better then the levels of disagreement between the clinicians and the computer generated diagnosis for the GMHAT tool.

***GMHAT/Full clinician diagnosis Vs SCAN clinician diagnosis***

Figure 9.4 displays the level of agreement between the diagnoses generated by the clinicians following the completion of the assessment using if necessary any further information not available in the following assessment with GMHAT or the SCAN assessment tools.



***Figure 9.4***

There was full or partial agreement in 88% of the assessments. There was no agreement in 8% of the assessments. The level of agreement between the clinicians was the best among all the groups and the level of disagreement was minimal.

### 9.43 Syndrome scores and GMHAT computer diagnosis

The analysis of the agreement between the syndromal level scores generated by the ALL-AGECAT algorithm following the GMHAT interview with the diagnoses generated by the tool at the end is summarised in Table 9.2. This gives a description of the syndromes that reached a score of 3 and above following analyses by the ALL-AGECAT algorithm at the completion of the GMHAT assessment and the diagnoses generated by the algorithm.

**Table 9.2**

		<b>GMHAT Syndrome with levels</b>	<b>GMHAT computer</b>	<b>F code</b>
1	Primary	Organic – 3 Substance Abuse – Alcohol 5	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>
	Secondary		Adjustment Disorder  Post-traumatic stress disorder (probably - too low)  Physical Problems	<b>F43.2</b>  <b>F43.1</b>
2	Primary	Mania ML – 5	Mania - Elated :Severe	<b>F30.1</b>
	Secondary			
3	Primary	General Anxiety Disorder 5	Manic Episode	<b>F30.1</b>
	Secondary		General Anxiety Disorder  Physical Problems  Obsessive personality trait  Dependent personality trait	<b>F41.1</b>
4	Primary	Major Depression - 4 Substance Abuse – Alcohol 4	Major Depression :Moderate	<b>F32.1</b>
	Secondary		Substance Misuse - Alcohol dependence(Social damage)  Substance Misuse - Tobacco (Problem Smoking)  Paranoid personality trait	<b>F10.2</b>  <b>F17.1</b>

			Obsessive personality trait	
5	Primary	Major Depression – 4 General Anxiety Disorder – 5	Major Depression(Bipolar) (Recurrent ) :Moderate	<b>F31.3</b>
	Secondary		General Anxiety Disorder Anxious personality disorder	<b>F41.1</b> <b>F60.6</b>
6	Primary	Major Depression -3 General anxiety disorder – 4 Substance Abuse – Alcohol 5	Paranoid Schizophrenia -	<b>F20.0</b>
	Secondary		Major Depression (Recurrent) :Mild General Anxiety Disorder Substance Misuse - Alcohol dependence (Physical & Social damage) Eating Disorders (Bulimia : At risk )	<b>F33.0</b> <b>F41.1</b> <b>F10.2</b> <b>F50.2</b>
7	Primary	Major Depression -4 Substance Abuse – Alcohol 4	Major Depression Moderate	<b>F32.1</b>
	Secondary		Psychosexual disorder Substance Misuse - Alcohol dependence (Social damage) Schizoid personality disorder	<b>F52</b> <b>F10.2</b> <b>F60.1</b>
8	Primary	Major Depression - 3	Major Depression (Recurrent ) :Mild	<b>F33.0</b>
	Secondary		Physical Problems Psychosexual Disorder	<b>F52</b>
9	Primary	Substance Abuse – Alcohol 3	Substance Misuse - Alcohol dependence	<b>F10.2</b>
	Secondary		Schizoid personality disorder	<b>F60.1</b>
10	Primary	Major Depression – 3 Obsessive Compulsive Disorder - 4 Panic Disorder – 4	Major Depression (Bipolar) (Recurrent ) :Mild	<b>F31.3</b>
	Secondary		Obsessive Compulsive Disorder Panic Disorder : Moderate	<b>F42</b> <b>F41.0</b>

			Substance Misuse Drugs ( Others, Cannabis, ) - Misuse a problem  Paranoid personality trait	<b>F19.1</b>
11	Primary	Major Depression - 4	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary		Major Depression (Recurrent ) :Moderate  Psychosexual Disorder  Paranoid personality disorder	<b>F33.1</b>  <b>F52</b>  <b>F60.0</b>
12	Primary	Obsessive Compulsive Disorder – 5	Obsessive Compulsive Disorder	<b>F42.0</b>
	Secondary		Physical Problems Anxious personality disorder	<b>F60.6</b>
13	Primary	Delusional Disorder - 4	Delusional Disorder (Past psychotic symptoms )	<b>F22.0</b>
	Secondary		Paranoid personality disorder	<b>F60.0</b>
14	Primary	Major Depression-3  Panic disorder-5  Substance abuse – Alcohol-3  Delusional disorder-3	Major Depression (Recurrent ) :Mild	<b>F33.0</b>
	Secondary		Paranoid Psychosis Resented: Mild  Panic Disorder : Severe  Physical Problems  Substance Misuse -Alcohol dependence  Anxious personality disorder  Dependent personality disorder	<b>F28</b>  <b>F41.0</b>  <b>F10.2</b>  <b>F60.6</b>  <b>F60.7</b>
15	Primary	Major Depression-3  Mania-5  Substance abuse – Drugs-3  Delusional disorder-4	Manic Episode	<b>F30.1</b>
	Secondary		Substance Misuse Drugs (Cannabis, )- Misuse a problem	<b>F12.1</b>

16	Primary	Major Depression-3 Panic disorder- 4	Major Depression (Bipolar ) (Recurrent ) :Mild	<b>F31.3</b>
	Secondary		Panic Disorder : Moderate	<b>F41.0</b>
17	Primary	Substance abuse – Alcohol-3	Psychosexual Disorder	<b>F52</b>
	Secondary		Substance Misuse - Tobacco (Problem Smoking)  Substance Misuse - Alcohol dependence	<b>F17.1</b>  <b>F10.2</b>
18	Primary	Panic disorder – 4  Substance abuse – Tobacco-3  Anxious Personality Disorder – 3	Panic Disorder : Moderate	<b>F41.0</b>
	Secondary		Physical Problems Substance Misuse – Tobacco  Anxious personality disorder	<b>F17.1</b>  <b>F60.6</b>
19	Primary	Schizophrenia and paranoia – 3  Major depression– 3  Panic Disorder – 4  Phobic Disorder – 4  Substance abuse – Tobacco- 3  Delusional Disorder – 3	Schizoaffective disorder - depressive type	<b>F25.1</b>
	Secondary		Panic Disorder :  Moderate Agoraphobia  Social phobia  Physical Problems Substance Misuse – Tobacco	<b>F41.0</b>  <b>F40.0</b>  <b>F40.1</b>  <b>F17.1</b>
20	Primary	Schizophrenia and paranoia 5  Major depression– 3  Substance abuse – Tobacco-3  Delusional Disorder – 4	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>

	Secondary		Physical Problems Psychosexual Disorder Substance Misuse – Tobacco	<b>F52</b> <b>F17.1</b>
21	Primary	Major depression– 3 Panic Disorder – 3 Substance Abuse – Alcohol – 5	Major Depression (Recurrent ) :Mild	<b>F33.0</b>
	Secondary		Panic Disorder : Mild Physical Problems Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F41.0</b> <b>F10.2</b>
22	Primary	Panic Disorder – 4 Emotionally unstable Personality Disorder– 3 Anxious Personality Disorder – 3	Panic Disorder : Moderate	<b>F41.0</b>
	Secondary		Anxious personality disorder Dependent personality disorder	<b>F60.6</b> <b>F60.7</b>
23	Primary	Substance Abuse – Alcohol 5	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>
	Secondary		Obsessive personality disorder	<b>F60.5</b>
24	Primary	Substance Abuse – drugs – 5 Substance Abuse – tobacco – 3	Substance Misuse Drugs - Physical or Social damage	<b>F19.1</b>
	Secondary		Substance Misuse – Tobacco	<b>F17.1</b>
25	Primary	Major depression – 3 Obsessive Compulsive Disorder - 4 Substance Abuse – Alcohol 3 Substance Abuse – tobacco 3	Major depression - Mild	<b>F32.0</b>
	Secondary		Obsessive Compulsive Disorder Physical problems Substance Misuse – Alcohol Dependence	<b>F42</b> <b>F10.2</b>

26	Primary	Substance Abuse – tobacco 3	Substance Misuse – Tobacco	<b>F17.1</b>
	Secondary		Obsessive personality trait Past Eating Disorder – Anorexia	
27	Primary	Schizophrenia and paranoia 4 Major depression– 3 Substance abuse-drugs- Delusional disorder – 3	Schizophrenia (moderate degree of certainty): Moderate	<b>F20.0</b>
	Secondary		Substance Misuse Drugs (Cannabis, Cocaine, Opiates/Heroin, Ecstasy)- Physical or Social damage	<b>F19.1</b>
28	Primary	Major depression– 4 General Anxiety Disorder - 5 Phobic Disorder – 4 Anxious personality disorder – 3	Major Depression :Moderate	<b>F32.1</b>
	Secondary		General Anxiety Disorder Specific phobia Psychosexual Disorder Eating Disorders (Bulimia : At risk) Anxious personality disorder	<b>F41.1</b> <b>F40.2</b> <b>F52</b> <b>F50.2</b> <b>F60.6</b>
29	Primary	Major depression– 3 Panic disorder - 4	Major Depression (Bipolar) ( Recurrent ) :Mild	
	Secondary		Panic Disorder : Moderate	<b>F41.0</b>
30	Primary	Schizophrenia and paranoia 5	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary		Adjustment Disorder Substance Misuse - Tobacco (Problem Smoking)	<b>F43.2</b> <b>F17.1</b>
31	Primary	None	None	
	Secondary			
32	Primary	Schizophrenia and paranoia 5 Major depression– 4	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>

		Panic Disorder - 4 Phobic disorder- 4 Substance Abuse – alcohol 5 Delusional disorder – 4 Schizoid Personality disorder - 3 Anxious personality disorder – 3		
	Secondary		Panic Disorder : Moderate Specific phobia Social phobia Substance Misuse - Alcohol dependence (Physical & Social damage) Paranoid personality disorder	<b>F41.0</b> <b>F40.1</b>  <b>F10.2</b>  <b>F60.0</b>
33	Primary	Major depression– 4 Eating disorder -- anorexia – 3 Eating disorder –bulimia – 3 Panic disorder – 4 Obsessive personality disorder – 3 Anxious personality disorder – 3	Major Depression (Recurrent ) :Moderate	<b>F33.1</b>
	Secondary		Panic Disorder : Moderate Psychosexual Disorder Eating Disorders (Anorexia) Eating Disorders (Bulimia) Obsessive personality disorder Past Eating Disorder – Bulimia	<b>F41.0</b> <b>F52</b> <b>F50.0</b> <b>F50.2</b>  <b>F60.5</b>
34	Primary	None	None	
	Secondary			
35	Primary	Major depression– 3	Major Depression (Recurrent) :Mild	<b>F33.0</b>
	Secondary		Physical Problems	



36	Primary	Major depression – 4 General Anxiety disorder – 4 Phobic disorder – 4 Anxious personality disorder – 3	Major Depression (Recurrent) :Moderate	<b>F33.1</b>
	Secondary		General Anxiety Disorder Social phobia Eating Disorder(Anorexia : at risk ) Anxious personality disorder Dependent personality disorder	<b>F41.1</b> <b>F40.1</b> <b>F50.0</b> <b>F60.6</b> <b>F60.7</b>
37	Primary	General Anxiety disorder – 4 Substance abuse – tobacco – 3 Attention deficit disorder – 3 Paranoid personality disorder – 3 Emotionally unstable personality disorder – 3	General Anxiety Disorder	<b>F41.1</b>
	Secondary		Attention Deficit Disorder Substance Misuse – Tobacco Obsessive personality disorder	<b>F90</b> <b>F17.1</b> <b>F60.5</b>
38	Primary	Substance abuse – tobacco – 3	Delusional Disorder	<b>F22.0</b>
	Secondary		Adjustment Disorder Substance Misuse – Tobacco	<b>F43.2</b> <b>F17.1</b>
39	Primary	Schizophrenia & Paranoia - 5 Major depression - 3 Substance Abuse – Alcohol 4 Delusionol disorder -3	Schizophrenia (high degree of certainty ); Severe	<b>F20.0</b>
	Secondary		Physical Problems Substance Misuse - Alcohol dependence (Social damage)	<b>F10.1</b>
40	Primary		DNA	
	Secondary			

41	Primary	Mania ML – 5 Major depression – 3	Mania :Severe	<b>F30.1</b>
	Secondary		Obsessive personality disorder Anxious personality disorder	<b>F60.5</b> <b>F60.6</b>
42	Primary	Major depression– 3 Panic Disorder - 4 Phobic Disorder – 4 Substance Abuse – Alcohol 5 Learning difficulty – 3 Delusional disorder - 4 Paranoid personality disorder Schizoid personality disorder - 3 Emotionally Unstable personality disorder - 3 Anxious personality disorder - 3 Dependent personality disorder – 3	Major Depression (Recurrent) :Mild	<b>F33.0</b>
	Secondary		Panic Disorder : Moderate Delusional disorder Agoraphobia Specific phobia Social phobia Psychosexual Disorder Learning Difficulty Substance Misuse - Alcohol dependence(Physical & Social damage)	<b>F41.0</b> <b>F22.0</b> <b>F40.0</b> <b>F40.1</b> <b>F40.2</b> <b>F52</b> <b>F10.2</b>
43	Primary	Organic – 3 Mania ML – 5 Substance Abuse – Alcohol 5 Substance Abuse – Tobacco 3	Mania ( Bipolar ) :Severe	<b>F31.1</b>

		Delusional disorder – 3		
	Secondary		Substance Misuse – Tobacco  Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F17.2</b>  <b>F10.2</b>
44	Primary	None	Psychosexual Disorder	<b>F52</b>
	Secondary			
45	Primary	Schizophrenia & Paranoia - 4  Major depression – 3  Substance Abuse – Drugs - 5  Substance Abuse – Alcohol- 3  Delusional disorder – 4	Schizophrenia (moderate degree of certainty): Moderate	<b>F20.0</b>
	Secondary		Substance Misuse Drugs - Physical or Social damage  Substance Misuse - Alcohol dependence	<b>F15.1</b>  <b>F10.2</b>
46	Primary	Mania ML – 5  Delusional disorder – 4	Mania without psychotic symptoms	<b>F30.1</b>
	Secondary		Psychosexual Disorder	<b>F52</b>
47	Primary	Schizophrenia & Paranoia – 5  Major depression - 4  Delusional disorder – 4	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary		Adjustment Disorder  Past Eating Disorder – Anorexia	<b>F43.2</b>
48	Primary	Major depression - 4  General Anxiety Disorder – 4  Panic disorder – 3  Substance Abuse – Alcohol 3	Major Depression (Bipolar) ( Recurrent ) :Moderate	<b>F31.3</b>
	Secondary		General Anxiety Disorder with Panic attacks Substance Misuse - Alcohol dependence	<b>F41.1</b>  <b>F10.2</b>
49	Primary	Major Depression – 4	Major Depression (Recurrent) :Moderate	<b>F33.1</b>

		General Anxiety Disorder – 5 Panic disorder – 5		
	Secondary		General Anxiety Disorder with Panic attacks	<b>F41.1</b>
50	Primary	Major Depression – 4 Panic disorder – 4  Substance Abuse – Alcohol 5 Substance Abuse – Tobacco 3	Major Depression (Bipolar) (Recurrent ) :Moderate	<b>F31.3</b>
	Secondary		Panic Disorder : Moderate  Physical Problems  Substance Misuse – Tobacco  Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F41.0</b>   <b>F17.1</b>  <b>F10.2</b>
51	Primary	None	None	
	Secondary			

There was an excellent level of agreement between the syndrome level diagnosis and the overall diagnosis generated by the ALL-AGECAT algorithm of the GMHAT/Full.

## **Chapter 10**

### **10.0 Discussion**

Reliability of a psychiatric interview is crucial as case identification primarily rests on this. As with any set of measurements there is a certain degree of variation from one patient interview to the next. Among all the types of variance 'error variance' are one that is unpredictable and not a result of determinable systematic factors. These are chance phenomenon and may arise due to factors such as variations in memory or attentiveness on the part of the patient or differences in the judgement and interpretation on the part of the physician. The proportion of error variance to the total variation is a measure of the degree of reliability (165, 166)

#### **10.1 Test - retest reliability**

Test-retest reliability is desirable in measures of constructs that are not expected to change over time. In contrast, if the attempt was to measure changeable conditions such as mood there will be inherent problems, since people's moods are expected to change from day to day. In this context the expectation would be to achieve only moderate test-retest reliability as high test-retest reliability would suggest that the variability and changes were not being picked up. Due to this challenge some previous studies have not included test-retest reliability studies as part of the reliability studies (149). To an extent this difficulty can be overcome by the design of the study.

The Guidelines for Evaluating and Expressing the Uncertainty of National Institute of Standards and Technology (NIST) Measurement Results (140), states that the following conditions need to be fulfilled in the establishment of repeatability:

- the same measurement procedure
- the same observer
- the same measuring instrument, used under the same conditions
- the same location
- repetition over a short period of time.

The test-retest reliability study was designed keeping in mind the NIST criteria. Since the same test is administered twice by the same interviewer differences between scores on the test and scores on the retest should be due solely to measurement error.

However this argument may not be applicable and if it did, may not be desirable when it comes to mental health assessment tools. There may be a variety of reasons why the second test might yield systematically different scores than the first administration.

- The attribute that is being measured may change between the first test and the retest. For example, a symptom such as anxiety may change between the two tests due to the interventions provided or due to natural course of the presentation. A low test-retest correlation might reflect real changes in the attribute itself. This is desirable as well; as, if this was not the case, then the test may not be sensitive enough to pick up the changes that occur.
- Carryover effect, particularly if the interval between test and retest is short. When retested, people may remember their original answer, which could affect answers on the second administration
- Interviewer bias, which refers to a systematic difference between how information is solicited, recorded, or interpreted. Interviewer bias is more

likely when disease status is known to interviewer. Hence if the interviewer is aware of the diagnosis following the first interview there is a risk that the second interview may be influenced by this.

There were some measures taken in the design of the study to reduce the impact of some of the issues discussed above. The time interval between the two interviews was between one and four weeks. Also when answering the questions the interviewer was requesting the patient to consider their presentation over a four week period. This was to try and minimise the impact of any significant change to the mental state of the patient being interviewed. However this time was reasonably sufficient for the patient not to remember the exact answers provided to reduce the carryover effect. Also this timeframe was such that the interviewer would not remember the exact answers provided as well which helped minimise the interviewer bias.

The sampling methods used in this study are also slightly different to the previous studies on assessment tools. Convenience sampling is a type of non-probability sampling which involves the participants being drawn from that part of the population which is close to hand (141). That is, participants are selected because they are readily available and convenient. This method was chosen due to practicality. The drawback of this sampling method though, is that it is difficult to scientifically make generalizations about the total population from this sample because it would not be representative enough.

The test-retest reliability study of the GMHAT/Full demonstrated that the symptoms that would be expected to show variability in the time space of the two interviews

such as anxiety, symptoms of depression and concentration showed lower Kappa agreement. The symptoms that take longer to change such as thought disorders, delusions, hallucinations and manic symptoms showed a higher kappa agreement. The agreement for the rating of past symptoms was consistently high. A high level of reliability with high kappa values were also obtained for syndromes such as Schizophrenia, Substance abuse –alcohol, Substance abuse – tobacco and Delusional disorder with reasonable confidence intervals. Syndromes such as Depression and Generalised anxiety disorder showed lower Kappa values with reasonable confidence interval. A Kappa value could not be calculated for some of the syndromes (e.g. eating disorders and personality disorders) as these syndromes were not identified during the course of the study due to the small numbers.

The findings are consistent with the preliminary studies using the Present State Examination (149, 150) where the lowest agreement was for the scores representing anxiety. Test-retest reliability studies on CIDI show similar results with low Kappa values for generalised anxiety disorder and panic disorder (168, 169).

The results indicate that the GMHAT is a reliable tool when used repeatedly over time with the same individual. It also suggests that the GMHAT is sensitive to change particularly for the areas that would show changes over a short period of time. However the numbers of participants was small and as a result the confidence intervals for some of the symptoms and syndromes were quite wide. Hence the results may need to be reflected based on this information.



A rater or a tool with high test-retest reliability is said to be reliable. High test-retest reliability will not necessarily lead to high inter-rater reliability. However a low Test-retest reliability usually leads to low inter-rater reliability. In summary, being in agreement with ourselves when using an assessment measure does not suggest that we will be in agreement with others using the same measure. However, if we are not in agreement with ourselves, the chances of us being in agreement with others is low.

## **10.2 Inter-rater reliability**

The error variance in psychiatric examination as described above contributes to differences in the diagnostic judgements between clinicians. Three items generally influence the inter-rater reliability in studies involving the diagnostic instruments (166). These include the interview instrument, the design of the inter-rater reliability test and the quantification of the agreement.

This study used the interviewer/observer design using video recordings of interviews using the GMHAT/Full as the method with weighted Kappa used as the statistical method to quantify the agreement.

The interviewer/observer design was adapted for this study mainly due to the limited resources available to the investigating team, clinical work demands on the raters and the impact on the participants on being subjected to two lengthy interviews. The test/retest design would have meant that the clinicians had to be available to conduct the test and the retest within a specified timeframe with the participants willing to engage in this. The clinicians involved in this study had regular clinical work demands which impacted on their ability to coordinate their availability to conduct

this. This would also have meant that the examiners would not have been able to assess the clients in a timely manner which would have impacted on the reliability of the study. The use of video recordings addressed these issues.

The correlation between the syndromes generated and the GMHAT/Full diagnosis generated by the algorithm was good. The correlation was particularly good for conditions such as Schizophrenia and major depression. The spread of syndromes and conditions were limited due to the setting of patient selection (inpatient unit) and small numbers of the patients interviewed. This also meant that it was possible to obtain a weighted Kappa on only a few syndromes due to the limited spread of syndromes across the small number of cases. However where obtained the Kappa was robust. It also demonstrated an excellent level of inter-rater agreement on a case by case basis. However due to the limited distribution of cases across the different syndromes it was not possible to establish the inter-rater reliability across all the different syndromes. Future studies should include patients with more variety of conditions to try and test the interrater reliability of all the different conditions.

The very good level of agreement across the symptoms of diagnostic importance is of interest as they are used in generating the syndromes and diagnostic criteria. Though the levels of agreement could not be established across the range of syndromes the excellent agreement across the symptoms suggests that the syndromes are based on reliable elements of the mental state examination.

These findings are consistent with the preliminary studies using the Present State Examination (154) and studies involving the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID I) and Axis II Disorders (SCID II) (157).

One of the possible areas of difficulty was the fact that the raters did not get a chance to cross examine the patients as they were rating recorded interviews. This could have led to an improvement or a reduction in agreement. However the use of videos meant that all the raters had access to the same verbal information, nonverbal information. The main reason for adopting this method was to minimise impact on the patients having to undergo multiple assessments.

This study demonstrates that the GMHAT can be reliably utilised in secondary care settings by clinicians to reliably describe and rate psychiatric symptoms.

### **10.3 Validity**

The validity of a diagnostic assessment technique is generally measured by determining the agreement between the diagnoses made by the assessment technique and some hypothetical "gold standard." Unfortunately, a gold standard for psychiatric diagnoses remains elusive. As has been discussed previously there is obvious difficulty in using ordinary clinical diagnoses as the standard because structured interviews have been specifically designed to improve on the inherent limitations of an unstructured clinical interview. In this study it was decided to compare the GMHAT/Full with the SCAN interview in order to overcome this limitation.

An alternate standard used in psychiatric diagnostic studies is known as a "best estimate diagnosis." Spitzer has proposed an operationalization of this best estimate diagnosis which he termed the "LEAD" standard. This standard involves conducting a longitudinal assessment (L) (i.e., relying in data collected over time), done by expert diagnosticians (E), using all data (AD) that are available about the subjects, such as family informants, review of medical records, and observations of clinical staff. Although conceptually the LEAD standard is appealing, the difficulty in implementing it accounts for its limited use. Some studies to test the validity of the SCID interview have used approximations of this method (176).

The findings from this part of the study suggest that the GMHAT has a good concordance with both the clinician as well as the SCAN tool. There also seems to be a good agreement between the syndromes generated and the diagnosis generated by the ALL-AGECAT algorithm of the GMHAT. The agreement was slightly lower when the GMHAT computer generated diagnosis was compared with SCAN computer generated diagnosis (76%) and when GMHAT computer generated diagnosis was compared with the Clinicians' diagnosis following use of the GMHAT (78%). The agreement was slightly higher when the SCAN computer generated diagnoses was compared with the Clinicians' diagnosis following use of the SCAN (80%). The agreement was highest when the clinicians' independent diagnoses (88%) following the use of the respective tools were compared.

The level of disagreement between Clinicians diagnosis and the computer generated diagnosis using GMHAT and the SCAN tools were the same (20%).

The mental state scores of the cases where there was no agreement between the GMHAT diagnosis and the clinicians' diagnosis were further explored. In 7 of the 10 cases where there was no agreement, past symptoms were documented in the GMHAT interview which were suggestive of the clinicians' diagnosis. The GMHAT algorithm had not taken this into account and this pattern is more pronounced when the participants' symptoms are in recovery or in remission. However the clinicians had taken this into account when making their diagnosis. This indicates that further work will need to take place to improve the computer programming of the ALL-AGECAT algorithm.

The participants for this arm of the study were recruited from an inpatient unit as well as from a service providing input to very complex clients with significant needs (the assertive outreach services) in the community. Hence it was not surprising that the majority of the participants had a diagnosis of a major mood disorder, psychotic disorder or mental and behavioural problems associated with substance misuse. Due to the limited time and resources available to the investigator this was deemed to be the best way to gain access to patients with significant psychopathology to capture the necessary data in order to complete this study. However the limited distribution of cases across the different syndromes meant that it was not possible to explore the validity of the GMHAT/Full in a variety of conditions across all the different syndromes. Future studies should consider testing in a variety of settings to include patients with more variety of conditions.

#### 10.4 Limitation of the Study

There are certain limitations to this study. The main limitations were as below

- Limitations due to design of study:

The study concentrated on the working age population. As a result the application of the GMHAT/Full in elderly and younger population is not known. This will need further testing in these population group and may identify the need for some modifications. This could potentially be achieved by adding additional questions (via specific modules – children, learning disability, neuropsychiatry etc.)

- Limitations due to resources

The study was not supported by any grants and funding arrangements. This meant that the clinicians involved in the study had to conduct the study alongside their regular clinical work. This limited the size of the study and the settings in which this could be conducted. If resources were to be available then future studies could be designed to test the GMHAT/Full in a wide range of settings with a more varied client group.

- Limitations due to the sample size

The sample size of the study was small due to the limitations of resources and clinicians time. This meant that certain statistical tests could not be conducted. For example in the validity study the statistic of choice would have been an assessment of the sensitivity and specificity as the data was categorical. The other statistics to use would have been positive predictive value (PPV) and negative predictive value (NPV). However due to small sample size the statistic would not have been a true reflection. Hence a simple percentage of agreement was used. Similarly in the inter-rater reliability study an excellent level of interrater agreement on a case by case basis was demonstrated. There was also a good agreement for the limited number of the syndromes that could be generated. However due to the limited distribution of cases

across the different syndromes it was not possible to establish the interrater reliability across all the different syndromes. In order to overcome this limitation bigger studies with a wider group of clients with a spread of conditions will need to be recruited and then statistically analysed.

### **10.5 The future applications of GMHAT/Full**

The Global Mental Health Assessment Tool is a versatile tool that can be utilised for a number of purposes. I have tried to explore some of the areas where this tool can be utilised in the future.

- The GMHAT/Full in Clinical practise:

The Government's 2011 mental health strategy, No Health without Mental Health, published in February 2011(171) sets out a vision for both improved mental health for all and better support for people with mental health problems. However there are considerable pressures on all publicly funded services including those for people with mental health problems. In the NHS, these pressures are having a significant impact on a range of services across the country. System reforms in the NHS and elsewhere bring an element of opportunity to services for people with mental health problems.

The GMHAT/Full will be important aid to the future mental health services for several reasons:

- Enhanced role of health practitioners:

Mental Health Practitioners (Nurses and others) already make assessments here in the NHS and in other developed countries. Their role will be enhanced further in the future. The GMHAT/Full being a comprehensive all in one assessment and management tool developed primarily to be used in clinical practice could help in

providing a comprehensive, consistent but clinically relevant assessment and diagnosis which would help in better evidence based treatments

- Improve efficiency and reduce cost:

Using information technology will allow GMHAT/Full based assessments to take place more easily in community settings thus improving patient experience. This could also reduce travel, need for office facilities and improve flexible working. The use of GMHAT/Full will avoid duplication as it is an all in one assessment. The information can be uploaded into electronic health systems directly thus ensuring better use of clinical time.

- Assessment output will be immediately available which would enhance communication between professionals and with other services thus improving outcomes and reducing risks.
- Using the GMHAT/Full will improve the objective measurement of problems.

This could subsequently be used to measure outcomes.

In low- and middle-income countries there is a poor provision of mental health care for many reasons, especially due to lack of resources. These countries therefore have few doctors and fewer psychiatrists, because of the high cost of medical education. A high proportion of these professionals immigrate to high-income countries. In a number of African countries there are no psychiatrists and in some only one or two. Many thousands of mentally ill people remain untreated, unable to work, and in poverty or in mental institutions. One solution to this problem could be to train more nurses to assess and manage mental illness. The GMHAT/Full could be a useful tool which if used following a period of training could significantly enhance the provision of mental health care in these countries.



- The GMHAT/Full version in evidence based practise:

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The philosophical origins of evidence-based medicine extend back to mid-19th century Paris and earlier. The practice of evidence-based medicine includes integrating individual clinical expertise with the best available external clinical evidence from systematic research (172).

The practice of evidence-based medicine is a process of life-long, self-directed learning. The GMHAT/Full would enhance this experience by helping individual clinician generate clinically important information about diagnosis, prognosis, therapy, and other clinical and health care issues on patients we see in the real world. The GMHAT/Full would thus help bolster individual clinical expertise by enhancing the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice. This would help in more effective and efficient diagnosis and in the more thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions about their care.

- The GMHAT/Full in research:

The GMHAT/Full can be used to enhance clinically relevant research. Data can be collected in routine clinical practise with clients in clinical settings. The analysis of this data can lead to practise based evidence.

Usually a patient presents for an assessment with a multitude of problems. However generally there has been a preoccupation with single diagnosis. Once a primary

diagnosis is identified we focus our treatment on the primary diagnosis to the detriment of the patient, as the subsidiary problems may have similar or even more impact on the quality of the life. Unless all the diagnostic possibilities are diagnosed with equal weighting adequate care cannot be provided. The use of tools such as the GMHAT/Full can help focus on the syndromes rather than on a single diagnosis. Cluster analysis of the data can help further test out the accuracy and precision of a variety of diagnosis. The ongoing use of the GMHAT/Full as a follow up tool can also help monitor the outcomes of a variety of interventions in clinical settings.

- The GMHAT/Full in Education and training:

The GMHAT/Full lends itself quite well to be utilised for purpose of training clinicians. It is an extremely useful tool to acquire skills of a thorough mental health assessment. This includes areas of history taking, mental state examination, understanding the impact on quality of life of individuals and understanding the concept of risk assessment.

The GMHAT/Full has been used in very small pilots in hospital setting for the training of trainee doctors as well as for the purpose of training of other mental health practitioners in an Early Intervention Team. The feedback has been generally very good. This will need to be explored in more detail to scientifically assess the impact of traditional training methods against training with additional tools such as the GMHAT/Full. The GMHAT/Full can also enable the training of health workers such as mental health nurses or primary care nurses, with training in mental health to provide mental health assessment in primary care. This would be of great value as this can reduce the impact on primary care physicians. This can also enable more people to receive a good quality assessment.

- The GMHAT/Full in Clinical Governance:

The use of activity-related funding mechanisms is increasing internationally. In England, the Department of Health plans to extend the scope of Payment by Results, an activity-based funding approach, to mental health. The direction is to set up mental health clusters that form units for contracting and commissioning mental health services (173).

Use of the mental health clusters was mandated for use from April 2012. The clusters are the currencies for most mental health services for working age adults and older people. That means that service users have to be assessed and allocated to a cluster by their mental health provider, and that this assessment must be regularly reviewed in line with the timing and protocols set out in the mental health clustering booklet. It also means that the clusters must form the basis of the contracting arrangements between commissioners and providers (174).

This funding approach potentially offers incentives for a range of diverse objectives, including improvements in efficiency, quality of care and patient choice. However, to date the application of this approach to mental health care has been limited and there is no long-term experience to inform policy and practice (174).

In England, health professionals are overly burdened by filling forms, ticking boxes-reducing their time for clinical use. IT systems currently in existence are geared towards, documentation, administration or meeting contractual needs. There is a need for a system that can integrate the clinical and administrative needs which can then help with meeting the contractual agreements (175). The GMHAT/Full could be one

of the possible solutions to this issue. There is a possibility to link the ALL-AGECAT algorithm to generate the care clusters based on the information gathered which can then be used to meet and measure contractual agreements. e.g. complexity of problems, clinical outcomes, risk assessment/ management etc.

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# Appendix 1

## **The Global Mental Health Assessment Tool/Full Version (GMHAT/Full) questionnaire.**

**GLOBAL MENTAL HEALTH ASSESSMENT TOOL/FULL**  
**VERSION**  
**(GMHAT/FULL)**

**PATIENT DETAILS**

Registration No	
Forename	
Surname	
Gender	
Date of birth	
Address	
Phone – Home Office Mobile	
E-Mail	
NHS Number	
GP details	
Referred by	
Ethnic group	

My name is (Dr. /Mr. /Ms.) ----- . May I ask you to remember my name as I will ask you later? (If difficult adopt an easy name which patient can repeat easily).

We make a fairly detailed assessment of people's problems and health, particularly mental health including areas that may affect their mental health. Would you be willing for me to ask you some questions?

If yes: Don't be concerned if some of the questions appear a little odd or strange, some will not apply to you, but we have to ask every one the same sort of questions.

## **PRESENTING PROBLEMS**

**What has been troubling you lately?**

**Is there any thing else?**

**How distressing or troublesome is it?**

(Record as many symptoms as patient reports)

**When did it begin?**

**Would you say, you were fairly well before that?**

**No Symptoms** ☐ (A0)

Problem/Symptom (A2)	Severity (A3)

Duration of present episode ----- (A4) Days/Weeks/Months/Year (A5)

**Was there any thing that brought this on?**

**Have you had any kind of stress?**

**No Stress** ☐ (A6.0)

(Record recent or ongoing stressors)

Nature of Stress (A6)	Severity (A7)	Cause or Effect (A8)

*Rate (A8): 1=Stress definitely caused the problem 2=Stress probably caused the problem*  
*3=Problem definitely led to stress 4=Problem probably led to stress*  
*5=No relationship*

*(If A8 rated 3, 4 or 5 go to A10)*

**What happened after (the event)? Did you have unpleasant dreams?**

**What was happening in the dreams?**

**How did you feel when you woke up?**

(Rate frightening dreams) 0 1 2 3 8 9 (A9.1)

(0=Absent,

1= Frightening dreams mild, infrequent,

2= Frightening dreams moderate, frequent, mostly persistent

3= Frightening dreams severe, persistent,

8= Doubtful or unsure,

9= Not asked or not applicable)

**How often did they occur at the time? (How many times in the last month)**

(Rate frequency of the frightening dreams) 0 1 2 3 8 9 (A9.2)

(0=Absent, 1= About once a week 2= More or less every night  
3= Few times a night 8= Doubtful or unsure, 9= Not asked or not applicable)

**Have you had moments when you were wide awake during the day time, when you suddenly saw (the stressful event) happening again as if it was in front of your eyes? Could you stop it?**

(Rate flash backs) 0 1 2 3 8 9 (A9.3)

(0= Absent,  
1= Flashbacks mild, infrequent and little difficulty in controlling,  
2= Flashbacks moderate, frequent, mostly persistent and some difficulty in controlling  
3= Flashbacks severe, persistent and unable to control  
8= Doubtful or unsure,  
9= Not asked or not applicable)

**How often did they occur at the time? (During the last month)**

(Rate frequency of flashbacks) 0 1 2 3 8 9 (A9.4)

(0= Absent, 1= Almost every day 2= Every day  
3= Several times a day 8= Doubtful or unsure, 9= Not asked or not applicable)

**Have you tried going back to where (the stressful event) happened? (If not) why is that?**

**Is it because you get too frightened?**

(Rate degree of fear) 0 1 2 3 8 9 (A9.5)

(0= Absent, 1= Mildly fearful 2= Moderately fearful  
3= Severely fearful 8= Doubtful or unsure, 9= Not asked or not applicable)

**Did you try to avoid it at first?**

**(If unlikely to go to the place) If you did have to go back there, do you think you would try to avoid that?**

(Rate degree of avoidance) 0 1 2 3 8 9 (A9.6)

(0= Absent, 1= Tries to avoid occasionally 2= Tries to avoid usually  
3= Tries to avoid always 8= Doubtful or unsure, 9= Not asked or not applicable)

**After (the stressful event) did you find yourself very irritable and angry?**

**Did other people complain about you?**

(Rate irritability) 0 1 2 3 8 9 (A9.7)

(0= Absent, 1= Mild, infrequent irritability  
2= Moderate, frequent irritability 3= Severe, persistent irritability  
8= Doubtful or unsure, 9= Not asked or not applicable)

**After (the stressful event) have you had other difficulties such as becoming too much watchful of your surroundings (vigilant) or jumpy?**

(Rate hyper vigilance and exaggerated startle response) 0 1 2 3 8 9 (A9.8)

(0=Absent,

1= Mild, infrequent hyper vigilance and exaggerated startle response

2= Moderate, frequent hyper vigilance and exaggerated startle response

3= Severe, persistent hyper vigilance and exaggerated startle response

8= Doubtful or unsure,

9= Not asked or not applicable)

**Are you currently taking any medication?**

No medication ☐ (A10)

Medication(A11)	Dose (A12)	Route (A13)	Frequency (A14)

**Are you currently receiving any help from other agencies?**

No help ☐ (A15)

Agency (A16)	Duration (A17)	Period (A18)	Frequency (A19)

**Description of present illness including stressors**

(A1)

--



### PAST MENTAL HEALTH

**Have you ever suffered from similar problems in the past?**

**Have you had any other mental health problems in the past?**

**No problems**  $\square$  (B0)

Age (B2)	Problems/Diagnosis (B3)	Duration (B4)	Period (B5)	Intervention (B6)	Outcome (B7)

**Have you ever been admitted to hospital for mental health problems?**

**No admissions** ☐ (B8)

Total no. of admissions \_\_\_\_\_ (B9)      No. of admissions in last 2 years \_\_\_\_\_ (B10)

Type of admission (B12)	Duration (B13)	Period (B14)	Year (B15)

**Have you received any help from other agencies?**

**No Help** ☐ (B16)

Agency (B17)	Duration (B18)	Period (B19)	Frequency (B20)

Overall course of psychiatric illness \_\_\_\_\_ (B21)

Rate B21: 1 = Recovered (in remission)      4 = Continuous but steady  
2 = Improving (partial recovery)      5 = Continuous with exacerbations  
3 = Intermittent (episodic)      6 = Continuous and worsening

Description of past mental illness including overall course (B1)



## FAMILY HISTORY

**Could you tell me a little bit about your family?**

(How old are your parents?) (How many brothers and sisters do you have?)

(How do you get on with your family members?)

**Has anyone in your family suffered from any mental illness?**

**Is there a history of suicide in your family?**

**Is there a history of alcohol or illicit drug in your family?**

**No mental illness** ☐ (D0)

Relationship(D2)	Age(D3)	Deceased(D4)	Problems/diagnosis(D5)	Treatment(D6)

**Has anyone in your family suffered from any physical illness?**

**No physical illness** ☐ (D7)

Relationship (D8)	Age (D9)	Deceased (D10)	Problems/diagnosis (D11)	Treatment (D12)

### Description of the family including a history of illness

(D1)

\_\_\_\_\_

## **PERSONAL AND SOCIAL HISTORY**

### **CHILDHOOD**

**How was your early childhood?**

**How would you describe your upbringing?**

**Did you experience any difficulties during your early childhood?**

**No difficulties**    ☐    (E0)

**Such as:**

<b>Difficult labour</b>	<input type="checkbox"/> (E2)	-----	(E3)
<b>Delayed development</b>	<input type="checkbox"/> (E4)	-----	(E5)
<b>Separation</b>	<input type="checkbox"/>		(E6)
<b>Bereavement</b>	<input type="checkbox"/>		(E7)
<b>Illness/Hospitalisation</b>	<input type="checkbox"/>		(E8)
<b>Temper tantrums</b>	<input type="checkbox"/>		(E9)
<b>Bed wetting</b>	<input type="checkbox"/>		(E10)
<b>Thumb sucking/nail biting</b>	<input type="checkbox"/>		(E11)
<b>Hyperactivity</b>	<input type="checkbox"/>		(E12)
<b>School phobia</b>	<input type="checkbox"/>		(E13)
<b>Repetitive behaviour</b>			(E14.1)
<b>Other</b>	<input type="checkbox"/> (E14)	-----	(E15)

**Who brought you up?**    -----    (E16)

Rate (E16) :    1 = Parents    4 = Residential home  
                  2 = Foster parents    5 = Other  
                  3 = Other relatives

**Was it a happy childhood?**    Yes    ☐    No    ☐    (E17)

-----    (E18)

**Did you suffer any kind of abuse?**

**Physical**    Yes    ☐    No    ☐    (E19)

-----    (E20)

**Psychological**    Yes    ☐    No    ☐    (E21)

-----    (E22)

**Sexual**    Yes    ☐    No    ☐    (E23)

-----    (E24)

**Description of childhood and upbringing**    (E1)

----------

## **SCHOOLING**

**What was your experience of school?**

**Did you have any difficulties?**

**No difficulties** ☐ (E26)

**Such as:**

**Were you ever a bully or were you bullied by others? Or**

**Frequently played truant from school? Or**

**Committed any offences such as shoplifting, car theft etc.? Or**

**Misused drugs/alcohol? Or (if women)**

**Became pregnant during teenage? Or**

**Had difficulties with reading or writing? Or**

**Attended a special school?**

- |                                     |                          |       |
|-------------------------------------|--------------------------|-------|
| <b>Being bullied</b>                | <input type="checkbox"/> | (E27) |
| <b>Bullied others</b>               | <input type="checkbox"/> | (E28) |
| <b>Played truant</b>                | <input type="checkbox"/> | (E29) |
| <b>Criminal behaviour</b>           | <input type="checkbox"/> | (E30) |
| <b>Drug misuse</b>                  | <input type="checkbox"/> | (E31) |
| <b>Alcohol misuse</b>               | <input type="checkbox"/> | (E32) |
| <b>Teenage pregnancy</b>            | <input type="checkbox"/> | (E33) |
| <b>Reading/writing difficulties</b> | <input type="checkbox"/> | (E34) |
| <b>Attending a special school</b>   | <input type="checkbox"/> | (E35) |

**At what age did you leave school? ----- Years** (E36)

**Did you gain any qualifications? -----** (E37)

Rate (E37)

1 = No qualifications	2 = Unskilled labour
3 = apprenticeship/ vocational qualification	4 = Secondary/GCS/O level
5 = Higher secondary/A level	6 = University degree
7 = Other	

**Give a description of schooling** (E25)

**What did you do after you left school?  
Can you tell me about your jobs/employment?**

Employment (E39)	Duration (E40,41)

\_\_\_\_\_

## PSYCHOSEXUAL HISTORY

**Can I ask about your relationships?**

**Are you in any relationship or marriage at present?** Yes ☐ No ☐ (E45)

*(If no move to E49)*

**How long have you been in this relationship?** ----- (E46, 47)

**Can you tell me about your first and subsequent relationships?**

*(If had any relationships)*

**Have you had any difficulty with your marriage or relationship?**

Yes ☐ No ☐ Never had relationship ☐ (E49)

**On the whole, what have your relationships been like?**

*(Overall pattern of relationships)* ----- (E50)

Rate (E50):

0 = Had a long term satisfactory relationship      3 = Had a long term difficult relationship

1 = Had a short term satisfactory relationship      4 = Had several difficult relationships

2 = Had a short term difficult relationship

**Do you have any children? How many?**      0 1 2 3 4 5 or more

**We ask this question to everybody:**

**Do you have any problems or concerns about any aspect of your sexual life?**

0 1 2 3 8 9 (E52)

(0=No difficulties

1= Mild,

2= Moderate,

3= Severe,

8= Doubtful or unsure,

9= Not asked or not applicable)

*(If scores 1, 2 or 3 then E53, otherwise move to E48)*

**If yes what?** ----- (E53)

1 = Lack of sexual desire

9 = Transvestism

2 = Sexual aversion

10 = Fetishism

3 = Orgasmic dysfunction

11 = Exhibitionism

4 = Premature ejaculation

12 = Voyeurism

5 = Vaginismus (non organic)

13 = Paedophilia

6 = Dyspareunia (Non organic)

14 = Sadomasochism

7 = Excessive sexual desire

15 = Sexual orientation (Egodystonic)

8 = Transexualism

16 = Other sexual disorder

**Description of psychosexual history including current and past relationships and children** (E48)

--

## ***FORENSIC HISTORY***

**We ask everyone if they have been ever been involved with any antisocial activities such as theft, break-ins or fights.**

**Have you been in trouble with the police at any time?**

0 1 2 3 8 9 (E54)

*(If rated 0 move to E57)*

(0=No evidence                      1= One incident                      2= Occasional incidents(<5)  
3= Recurrent incidents(>5)    8= Doubtful or unsure,           9= Not asked or not applicable)

**Were you charged with an offence or did you receive any sentence or fine?**

**(do not include minor driving offences such as speeding tickets, parking fines etc.)**

0 1 2 3 8 9 (E55)

(0=No evidence                      1= One incident                      2= Occasional incidents(<5)  
3= Recurrent incidents(>5)    8= Doubtful or unsure,           9= Not asked or not applicable)

**Have you ever been admitted to a medium or high security hospital/unit?**

0 1 2 3 8 9 (E56)

(0=No admissions

1= One short admission to a low secure unit

2= Admission to medium secure unit or more than two admissions to low secure units

3= Admission to high secure unit

8= Doubtful or unsure,

9= Not asked or not applicable)

**Give a description of forensic history**

(E57)



## ***PRE MORBID PERSONALITY***

**I want to ask you about the kind of personality you had all your life. We are all different and we all have our good aspects of personality as well as less good. Can you describe the kind of person you have been most of your life?**

You may ask the patient or an informant the following questions and use your judgement to establish specific personality traits or disorder.

Use the rating scale as below

(0= Absent,

2= Symptoms moderate and frequent

8= When interviewer is unsure

1= Symptoms mild and infrequent

3= Symptoms severe and persistent

9= Not applicable or not asked)

**Have you been a particularly sensitive even perhaps a suspicious type of person?**

(Paranoid) 0 1 2 3 8 9 (E58)

**Have you tended to be a shy, retiring type of person, perhaps with few friends and preferring to spend time alone with your own thoughts?**

(Schizoid) 0 1 2 3 8 9 (E59)

**Have you disliked taking responsibility, perhaps been aggressive or violent with little concern for the feeling of others?**

(Dissocial) 0 1 2 3 8 9 (E60)

**Have you tended to be an impulsive person, easily upset and occasionally violent to yourself with a feeling of emptiness and some incidents of self harm?**

(Emotionally unstable) 0 1 2 3 8 9 (E61)

**Do you feel upset if you are not the centre of attention from other people?**

(Histrionic) 0 1 2 3 8 9 (E62)

**Are you a perfectionist, perhaps indecisive, perhaps conscientious?**

(Obsessive) 0 1 2 3 8 9 (E63)

**Are you a worrier, do you get tense, feeling you are not as good as others?**

(Anxious) 0 1 2 3 8 9 (E64)

**Do you prefer not to take decisions and leave them to other people?**

(Unduly compliant)

(Dependent) 0 1 2 3 8 9 (E65)

**Has it (behavioural pattern) been like this as long as you can remember?**

(Rate frequency of personality problems) 0 1 2 3 8 9 (E66)

(0 = No

2 = Yes and frequent

8 = When interviewer is unsure

1= Yes and occasional

3= Yes and persistent

9 = Not applicable or not asked)

**Does it often cause you or others distress?**

(Level of distress caused) 0 1 2 3 8 9 (E67)

(0 = No

1= Yes and occasional

2 = Yes and frequent

3= Yes and persistent

8 = When interviewer is unsure

9 = Not applicable or not asked)

**Are you able to cope with it or does it cause your problems?**

(Rate unable to cope and cause problems) 0 1 2 3 8 9 (E68)

(0 = No

1= Yes and occasional

2 = Yes and frequent

3= Yes and persistent

8 = When interviewer is unsure

9 = Not applicable or not asked)

**Description of personality**

(E69)

***CURRENT SOCIAL CIRCUMSTANCES***

**Marital status** -----

(E71)

1 = Married

5 = Separated

2 = Single

6 = Co-habiting

3 = Divorced

7 = Civil Relationship

4 = Widowed

**Living circumstances** -----

(E72)

1 = Alone

4 = With Family

2 = Sheltered accommodation

5 = With Friends

3 = Supported accommodation

**Description of current social circumstances**

(E70)

## **SUBSTANCE ABUSE**

### ***ALCOHOL ABUSE***

**May I ask about your drinking habits (alcohol)?**

**How much do you drink?**

**No evidence of alcohol misuse** ☐ (F0)

*(If no evidence, move to F15)*

Amount(F1)	Measure(F2)	Type(F3)	Frequency(F4)	Duration(F5)	Period(F6)

**Do you have a strong desire to drink alcohol every day?**

(Rate degree of desire to drink alcohol) 0 1 2 3 8 9 (F7)

(0= Absent

1= Mild to moderate desire

2= Strong desire but can resist at times

3= Strong desire and cannot resist

8= When interviewer is unsure

9= Not applicable or not asked)

**Do you have difficulty stopping drinking after taking one or two drinks?**

**Do you have spells of binge drinking?**

(Rate difficulty in stopping or / and binge drinking) 0 1 2 3 8 9 (F8)

(0= No

1= Occasional difficulties

2= Frequent difficulties

3= Severe and persistent difficulties

8= When interviewer is unsure

9= Not applicable or not asked)

**Has the amount of alcohol you drink increased over a period of time?**

0 1 2 3 8 9 (F9)

(0= No

1= Increased to some extent

2= Increased to moderate extent

3= Increased to significant extent

8= When interviewer is unsure

9= Not applicable or not asked)

**Have you suffered from any withdrawal symptoms such as shakes, loss of consciousness, had frightening visions (delirium tremens) while awake or fits?**

**No withdrawal symptoms** ☐ (F10)

Symptoms (F11)	Severity (F12)
Shakes	
Delirium tremens	
Blackouts	
Fits	

**Have you given up some of your hobbies or responsibilities because of your drinking?**

(0= No	1= Some decline
2= Moderate decline	3= Severe decline
8= When interviewer is unsure	9= Not applicable or not asked)

(Rate adverse psychosocial or physical consequences) 0 1 2 3 8 9 (F14)

(Rate excessive drinking in the past) 0 1 2 3 8 9 (F15)

Description of current and past history of alcohol misuse (F16)

--

## DRUG ABUSE

**Do you take any drugs not prescribed by a doctor (illicit drugs) and / or have you misused any substances?**

**No evidence of drug misuse** ☐ (F17)

*(If no evidence, move to F27)*

Drug (F18)	Amount(F19)	Route (F20)	Duration(F21)	Period (F22)	Help (F23)

**Do you suffer from withdrawal symptoms?**

*(Rate degree of withdrawal symptoms)* 0 1 2 3 8 9 (F24)

(0= Absent, 1= Symptoms mild and infrequent  
2= Symptoms moderate and frequent 3= Symptoms severe and persistent  
8= When interviewer is unsure 9= Not applicable or not asked)

**Do you suffer from any physical or social complications from drug use?**

*(Rate degree physical and social complications)* 0 1 2 3 8 9 (F25)

(0=No 1= Mild, 2= Moderate,  
3= Severe, 8= Unsure, 9= Not asked or not applicable)

**Is drug misuse a problem for you? Are you dependent on drugs?**

*(Rate Severity of drug / substance misuse as a problem)* 0 1 2 3 8 9 (F26)

(0=No 1= Mild and some dependency 2= Moderate and dependency  
3= Severe and dependency 8= Unsure, 9= Not asked or not applicable)

**Have you misused illicit drugs in the past?**

0 1 2 3 8 9 (F27)

(0= No 1= Occasionally 2= Frequently  
3= Persistently 8= Unsure 9= Not applicable or not asked)

**Description of present and past drug misuse.** (F28)

## SMOKING

**Do you smoke?**

Yes ☐ No ☐ (F29)

*(If No, move to Gw1)*

**How many cigarettes/cigars/pipes do you smoke a day?**

Cigarettes ----- (F30)

Cigars ----- (F31)

Pipes ----- (F32)

**Is smoking a problem for you?**

*(Rate smoking as problem)* 0 1 2 3 8 9 (F33)

(0= No 1=Somewhat 2= Moderate  
3= Significant 8= Unsure 9= Not applicable or not asked)

## **MENTAL STATE EXAMINATION**

*Rate the following questions as below unless a specific rating scale is mentioned.*

(0= No evidence of presence of symptom

1= Symptoms present and mildly distressing or disabling

2= Symptoms moderate and frequent

3= Symptoms severe and persistent

8= When interviewer is unsure about the presence or absence of the symptom

9= Not applicable or not asked)

### ***WORRY***

#### **0. Do you tend to worry a lot?**

**What about money or family problems, your own health or someone else's health?**

**Anything else?**

**How much do you worry?**

(Rate worry) 0 1 2 3 8 9 (Gw1)

*(If Q 0 = 0 then move to Q 2)*

#### **1. Does this worrying bother you a lot?**

**Is it unpleasant (can you stop yourself worrying)? do the thoughts keep coming back?**

(Rate worry) 0 1 2 3 8 9 (Gw2)

## **ANXIETY**

### **2. Do you get frightened or very nervous?**

(Rate anxiety) 0 1 2 3 8 9 (Ga1)

*(If Q 2 = 0 then move to Q 5)*

### **3. Do you have difficulty in relaxing (resting)?**

(Rate Tension) 0 1 2 3 8 9 (Ga2)

### **4. Have you felt your heart pound or felt yourself trembling (or sweating or your mouth dry) in the last month (when this was not happening due to exercise).**

(Rate Autonomic symptoms) 0 1 2 3 8 9 (Ga3)

### **5. Have you had attacks of fear or panic when you had to do something to end it?**

(Rate panic attacks) 0 1 2 3 8 9 (Ga4)

*(If Q 5 = 0 then move to Q 10)*

### **6. How often does this happen (in a day/week)?**

(Rate frequency of panic attacks) 0 1 2 3 8 9 (Ga5)

(0= No

1= Infrequent

2 = Occasional

3= Frequent

8= Unsure

9= Not applicable or not asked)

### **7. Do these attacks come on suddenly?**

(Rate sudden onset of panic attacks) 0 1 2 3 8 9 (Ga6)

(0= No

1= Some times

2 = Most of the times

3= Always

8= Unsure

9= Not applicable or not asked)

### **8. Do they mostly happen when you are doing or experiencing the same thing or do they seem to happen for no apparent reason?**

(Rate panic attacks not associated with a specific fear) 0 1 2 3 8 9 (Ga7)

(0= No

1= Some time for no apparent reason

2 = Mostly for no apparent reason

3= Always for no apparent reason

8= Unsure

9= Not applicable or not asked)

### **9. How long do they last for?**

(Rate panic attacks at least some minutes) 0 1 2 3 8 9 (Ga8)

(0= No

1= Rarely lasts for a few minutes

2 = Frequently lasts for a few minutes

3= Always lasts for a more than a few minutes

8= Unsure

9= Not applicable or not asked)

### **10. Have you suffered from such anxiety or panic symptoms at any time in the past? When was it? How many times? Can you describe?**

(Rate past anxiety/panic symptoms – rating based on severity and frequency)

0 1 2 3 8 9 (Gap)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

xx

## **CONCENTRATION**

### **11. How is your concentration?**

**Can you concentrate on a TV/radio programme?**

**Or something you read?**

**Can you watch, listen or read it right through?**

(Rate concentration impairment) 0 1 2 3 8 9 (Gc1)

(0= No

1= Mild

2 = Moderate

3= Severe

8= Unsure

9= Not applicable or not asked)

### **12. Can you take 7 from 100 and keep on taking 7 away until I ask you to stop?**

(Rate concentration) 0 1 2 3 8 9 (Gc2)

(0= No

1= 1 mistake

2 =2 or 3 mistakes

3= 3 or more mistakes

8= Unsure

9= Not applicable or not asked)

If unable to do this then ask

### **13. Can you take 3 away from 40 and keep on taking 3 away until I ask you to stop.**

(Rate concentration) 0 1 2 3 8 9 (Gc3)

(0= No

1= 1 mistake

2 =2 or 3 mistakes

3= 3 or more mistakes

8= Unsure

9= Not applicable or not asked)



## **DEPRESSION**

### **14. Have you been sad (depressed) recently?**

**Is the depression there most of the time or just a few hours at a time?**

**(Depression present for most of the day)**

(Rate depressed mood) 0 1 2 3 8 9 (Gdp1)

*(If Q 14 = 0 then move to Q 17)*

### **15. Have you cried at all? Or felt like crying? (If yes)**

**How much have you cried or felt like crying?**

(Rate tearfulness/ crying spells) 0 1 2 3 8 9 (Gdp2)

### **16. What time of the day do you feel the worst?**

(Rate diurnal variation of mood) 0 = No diurnal variation ☐ (Gdp5)  
1 = Worse in the morning ☐ (Gdp3)  
2 = Worse in the evening ☐ (Gdp4)

### **17. How is your interest in things? (Have you lost interest in things?)**

(Rate loss of interests) 0 1 2 3 8 9 (Gdp6)

### **18. What have you enjoyed doing recently? (Is it because you are too depressed or nervous?)**

(Rate loss of joy) 0 1 2 3 8 9 (Gdp7)

### **19. Do you get worn out (exhausted) and lack energy (to do the things you want to do?) Are you like that most days?**

(Rate lack of energy) 0 1 2 3 8 9 (Gdp8)

### **20. Have you lost confidence in yourself?**

(Rate loss of confidence) 0 1 2 3 8 9 (Gdp9)

### **21. Do you tend to blame yourself or feel guilty about anything?**

**What? (Do you mean you actually feel worthless?)**

(Rate guilt feelings) 0 1 2 3 8 9 (Gdp10)

### **22. Have you slowed down in your activities?**

**Do you get agitated at times?**

(Rate psycho – motor agitation/retardation) 0 1 2 3 8 9 (Gdp11)

**Retardation** ☐ (Gdp12)

**Agitation** ☐ (Gdp13)

### **23. Have you suffered from depression at any time in the past? When was it? How many times? Can you describe?**

(Rate past episodes of depression – rating based on severity and frequency)

0 1 2 3 8 9 (Gdp14)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

## ***SUICIDAL THOUGHTS***

### **24. How do you see your future?**

**Do you feel hopeless?**

(Rate hopelessness) 0 1 2 3 8 9 (Gsu1)

### **25. Have you ever felt that you'd rather be dead (because life has become a burden to you?) Have you ever felt that you wanted to end it all? (Have you ever thought of doing anything about it yourself?) (Killing yourself)**

(Rate suicidal thoughts held anytime) 0 1 2 3 8 9 (Gsu2)

*(If Q 24 and Q 25 = 0 then move to Q 28)*

### **26. Why do you think you felt that way?**

**What did you do? (Or plan to do?)**

(Rate acts of self harm) 0 1 2 3 8 9 (Gsu4)

### **27. When was that?**

**Have you felt like that recently? (In the last month?)**

(Rate recent suicidal ideas) 0 1 2 3 8 9 (Gsu3)

## **SLEEP**

**28. Have you had trouble sleeping recently? (Have you taken anything to help you sleep?)**

(Rate sleep difficulties) 0 1 2 3 8 9 (Gsl1)

(If Q 28 = 0 then move to Q 34)

**29. Have you had any difficulty falling asleep? (Getting of to sleep)**

**Do you lie awake for long periods of time? (waiting to sleep)**

(Rate initial insomnia) 0 1 2 3 8 9 (Gsl2)

(0= No                      1= Less than 1 hour                      2 = 1-2 hours  
3= Over 2 hours        8= Unsure    9= Not applicable or not asked)

**30. Is your sleep interrupted during the night?**

(Rate interruption of sleep) 0 1 2 3 8 9 (Gsl3)

**31. Have you recently been waking up early in the morning and found it impossible to get back to sleep?**

**What time would that be?**

**Is it your usual time?**

**How often has it happened?**

(Rate early morning wakening) 0 1 2 3 8 9 (Gsl4)

(0= No                      1= Less than 1 hour                      2 = 1-2 hours  
3= Over 2 hours        8= Unsure    9= Not applicable or not asked)

**32. What wakes you up? (What is the difficulty?)**

**Is it a physical problem such as pain or having to pass water?**

**Does noise bother you?**

(Rate when sleep disturbance is due to other causes such as pain, physical problems or noise etc.)

0 1 2 3 8 9 (Gsl5)

(0= Not due to other (e.g. physical) causes                      1= Mild due to other causes  
2 = Moderate due to other causes                                      3= Severe due to other causes  
8= Unsure    9= Not applicable or not asked)

**33. Do you suffer from frightening dreams?**

(Rate frightening dreams) 0 1 2 3 8 9 (Gsl6)

### ***APPETITE, WEIGHT AND LIBIDO***

**34. What has your appetite been like? Do you enjoy your food?**

**Have you been eating more or less than usual?**

(Rate appetite loss / increase) 0 1 2 3 8 9 (Gaw1)

Loss of appetite ☐ (Gaw2)

Increase in appetite ☐ (Gaw3)

**35. Have you lost any weight during the past three months? (Have you gained any weight?) About how much? How much in the last month?**

(Rate weight loss / gain) 0 1 2 3 8 9 (Gaw4)

Loss of weight ☐ (Gaw5)

Weight gain ☐ (Gaw6)

**36. Have you noticed any change in your interest in sex recently?**

(Rate loss / increase in libido) 0 1 2 3 8 9 (Gaw7)

Reduced interest ☐ (Gaw8)

Increased interest ☐ (Gaw9)

## ***EATING DISORDER***

### **37. Do you unduly avoid fattening food?**

(Rate avoidance of fattening food) 0 1 2 3 8 9 (Gea1)

### **38. Do you worry you have no control over how much you eat?**

#### **Do you binge eat?**

(Rate poor control over eating) 0 1 2 3 8 9 (Gea2)

(If Q 37 and Q 38 = 0 then move to Q 43)

### **39. Do you believe yourself to be fat when others say you are too thin?**

(Rate preoccupation of being fat) 0 1 2 3 8 9 (Gea3)

### **40. Would you say that food dominates your life?**

(Rate if food dominates life) 0 1 2 3 8 9 (Gea4)

### **41. Do you make yourself sick (vomit) because you feel uncomfortably full or use drugs such as laxatives, diuretics or other drugs in order to reduce your weight?**

(Rate self induced vomiting / other measures to reduce weight) 0 1 2 3 8 9 (Gea5)

### **42. (For women) Have you stopped having periods?**

(Rate loss of periods) 0 1 2 3 8 9 (Gea6)

### **43. Have you suffered from eating problems at any time in the past?**

#### **When was it? How many times? Can you describe?**

(Rate past eating disorders) 0 1 2 3 8 9 (Geap)

**Suffered from Bulimia** ☐ (Geap1)

**Suffered from Anorexia** ☐ (Geap2)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

## **HYPOCHONDRIASIS**

### **44. How is your physical health?**

**Is there anything about your body or health which bothers or upsets you?**

**Are you in pain?**

**Or is there any part of your body not working properly? (Would you say you are physically fit?)**

(Rate only persistent preoccupation with serious illness) 0 1 2 3 8 9 (Gh1)

(If Q 44 = 0 then move to Q 48)

### **45. What did your doctor say about it?**

**Are the doctors on the whole helpful to you?**

**Have they been able to ease the condition?**

(Rate inability to ease the condition) 0 1 2 3 8 9 (Gh2)

(0= Doctors helpful

1= Somewhat unhelpful

2 = Very unhelpful

3= Totally unhelpful

8= Unsure

9= Not applicable or not asked)

### **46. Have you needed to go to several doctors for the same condition, because none of them seems able to help you?**

(Rate visits to several doctors or health providers for the same condition. Don't include referrals or second opinions etc. )

0 1 2 3 8 9 (Gh3)

(0= No such visits

1= Some visits

2 = Many visits

3= Frequent visits

8= Unsure

9= Not applicable or not asked)

### **47. What do you think is wrong with you?**

**What did your doctor say was wrong with you?**

**Do you accept that or are you convinced that there is a problem in spite of the medical reassurance?**

(Rate refusal to accept medical reassurance) 0 1 2 3 8 9 (Gh4)

(0= Complete acceptance

1= Some acceptance

2 = Generally no acceptance

3= No acceptance at all

8= Unsure

9= Not applicable or not asked)

## **OBSESSIONS / COMPULSIONS**

**48. Are there things you have to check a number of times, for example whether you have turned off the taps (faucets), or the lights, or locked the door at night?**

**Do you sometimes get out of bed to check? How many times?**

(Rate obsessive – compulsive checking, do not include poor memory, lapse of concentration etc.) 0 1 2 3 8 9 (Gob1)

*(If Q 48 = 0 then move to Q 50 )*

**49. Do you feel as if you are compelled to do this?**

(Rate compulsions) 0 1 2 3 8 9 (Gob2)

**50. Do you wash your hands a lot even when you know they are clean?**

(Rate compulsive hand washing) 0 1 2 3 8 9 (Gob3)

*(If Q 50 = 0 then move to Q 53)*

**51. Do you feel as if you are compelled to do this?**

(Rate compulsions) 0 1 2 3 8 9 (Gob4)

**52. Are there times when you cannot stop yourself doing that even though you try?**

(Rate inability to resist) 0 1 2 3 8 9 (Gob5)

**53. Are there thoughts or ideas that you feel compelled to think about or that you can't stop thinking about even though they seem silly?**

(Rate obsessions) 0 1 2 3 8 9 (Gob6)

*(If Q 53 = 0 then move to Q 55)*

**54. How much time does it take?**

**Does it interfere with other things you want to do?**

**Does that bother you?**

(Rate obsessions adversely affecting daily life) 0 1 2 3 8 9 (Gob7)

**55. Have you suffered from such problems at any time in the past? When was it? How many times? Can you describe?**

(Rate past episodes of OCD– rating based on severity and frequency)

0 1 2 3 8 9 (Gobp)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

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## PHOBIAS

**56. People sometimes have fears they know don't make sense like**

**Being afraid of crowds, public places or travelling from home or going out alone.**

**Have you felt like that in the last year?**

(Rate agoraphobia) 0 1 2 3 8 9 (Gph1)

**Or**

**57. Being in a small room or being frightened by some kind of animals, heights, dark places etc. Have you felt like that in the last year?**

(Rate specific phobia) 0 1 2 3 8 9 (Gph2)

**Or**

**58. Being the focus of attention e.g. eating out, speaking in public?**

**Have you felt like that in the last year?**

(Rate social phobia) 0 1 2 3 8 9 (Gph3)

*(If Q's 56, 57, 58 = 0 then move to Q 61)*

**59. Do you think that (the fear) is reasonable or excessive?**

(Rate degree of fear) 0 1 2 3 8 9 (Gph4)

(0= No symptom

1= Somewhat excessive

2 = Moderately excessive

3= Severely excessive

8= Unsure

9= Not applicable or not asked)

**60. Would you try to avoid this situation? How?**

**Have you done that in the last year?**

(Rate degree of avoidance) 0 1 2 3 8 9 (Gph5)

(0= No symptom

1= Mild

2 = Moderate

3= Severe

8= Unsure

9 = Not applicable or not asked)

**Describe phobias**

(Gph6)

**61. Have you suffered from any fears or phobias at any time in the past? When was it? How did that begin? Did you avoid the situation? Can you describe?**

(Rate past phobias– rating based on severity and frequency)

0 1 2 3 8 9 (GphP)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**



## **MANIC SYMPTOMS**

**62. Have you been more irritable (angry) lately?**

(Rate irritability) 0 1 2 3 8 9 (Gma1)

**63. Has there been a time recently when you have felt almost too energetic (full of energy)?**

(Rate increased energy levels) 0 1 2 3 8 9 (Gma2)

**64. Have you been feeling very happy recently for no apparent reason?**

(Rate elated mood) 0 1 2 3 8 9 (Gma3)

*(If Q's 62, 63, 64 = 0 then move to Q 70)*

**65. Have you had more ideas lately, perhaps more than you could manage?**

(Rate pressure of thoughts) 0 1 2 3 8 9 (Gma4)

**66. Have you been doing more than usual?**

(Rate overactivity) 0 1 2 3 8 9 (Gma5)

**67. Do you have special talents, powers or mission to your life?**

(Rate ideas of special ability, rate 2 or 3 only if delusions) 0 1 2 3 8 9 (Gma6)

**68. Could you be a special person? (In what way? Who could that be?)**

**Is there anything unusual about you?**

(Rate ideas of special identity, rate 2 or 3 only if delusions) 0 1 2 3 8 9 (Gma7)

*(If Q 68 = 0 then move to Q 70)*

**69. Do you believe you deserve this?**

Yes ☐ No ☐ (Gma8)

**70. Have you suffered from a 'state of high mood' at any time in the past? When was it? How many times? How long did it last?**

(Rate past manic symptoms– rating based on severity and frequency)

0 1 2 3 8 9 (GmaP)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

xxx

## **THOUGHT DISORDER**

**71. Do your thoughts get mixed up (muddled)? (So that you can't get them sorted out?) (Can you think clearly / straight?)**

(Rate thinking difficulties) 0 1 2 3 8 9 (Gth1)

**72. Do you feel that someone is making you think, feel or do things which you do not intend (someone controlling your thoughts, feelings or actions?) How?**

(Rate passivity - Rate 2 or 3 only if definite delusions) 0 1 2 3 8 9 (Gth2)

**73. Is anyone interfering with your thoughts or putting thoughts into your mind? How?**

(Rate thought insertion - Rate 2 or 3 only if definite delusions) 0 1 2 3 8 9 (Gth3)

**74. Can anyone read your mind or know what you are thinking?**

**How?**

(Rate thought broadcast - Rate 2 or 3 only if definite delusions)) 0 1 2 3 8 9 (Gth4)

**75. Can someone take your thoughts away? How?**

(Rate thought withdrawal - Rate 2 or 3 only if definite delusions) 0 1 2 3 8 9 (Gth5)

**76. Do you hear your thoughts spoken aloud? Can other people hear them?**

(Rate thought echo - Rate 2 or 3 only if definite thought echo) 0 1 2 3 8 9 (Gth6)

**77. Have you had any of such experiences (Please refer to thought insertion, broadcast, withdrawal etc.) at any time in the past? When was it? How often? Can you describe them?**

(Rate past thought disorder – rating based on severity and frequency)

0 1 2 3 8 9 (GthP)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

## **DELUSIONS**

- 78. Do you believe that people can talk about you, laugh at you or that the TV/radio/newspapers make references to you? (If yes)**  
**Do you think it really is true or is it perhaps just the way you feel about it?**  
**(Are you sure?)**

(Rate Ideas/delusions of reference - Rate 2 or 3 only if definite delusions)

0 1 2 3 8 9 (Gdl1)

- 79. Is anyone trying deliberately to annoy you or harm you?**

**What do they do?**

(Describe persecutory delusions)

(Gdl2)

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- 80. Could they be trying to do you real harm? (In what way?)**

(Rate Ideas/delusions of persecution - Rate 2 or 3 only if definite delusions)

0 1 2 3 8 9 (Gdl3)

- 81. Is something odd (strange) going on which you cannot explain?**

**Do you get any other strange thoughts? Such as**

**Your partner is unfaithful? Or**

**You have been treated unfairly? Or**

**Some celebrity is in love with you? Or**

**Some thing is unusual about any part of your body? Or**

**Your health (you being infested)? Or**

**Some thing special about you, or any thing else?**

**No evidence of other delusions**

☐

(Gdl4)

(These delusions if present are rated in the questions below)

*(If Q 81 = no evidence then move to Q 90)*

- 82. Do you believe that your partner is unfaithful?**

**(Can you tell me more about that?)**

(Rate delusions of jealousy – rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl5)

- 83. Do you believe that you have been treated unfairly?**

**(Can you tell me more about that?)**

(Rate delusions of litigation – rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl6)

- 84. Do you believe that some celebrity is in love with you?**

**(Can you tell me more about that?)**

(Rate delusions of love – rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl7)

**85. Do you believe that some thing is unusual about any part of your body?**

**(Can you tell me more about that?)**

(Rate delusions of misshapen body – rate 2 or 3 if definite delusions)

0 1 2 3 8 9 (Gdl8)

**86. Do you believe that some thing is special about you, or anything else?**

**(Can you tell me more about that?)**

(Rate delusions of grandeur – rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl9)

**87. Do you believe that you have been infested?**

**(Can you tell me more about that?)**

(Rate delusions of infestation – rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl10)

**88. Do you believe that a part of your body doesn't exist?**

**(Can you tell me more about that?)**

(Rate nihilistic delusions– rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl11)

**89. Do you believe that you have some serious illness or health problem inspite of doctor's reassurance? (Can you tell me more about that?)**

(Rate hypochondriacal delusions– rate 2 or 3 if definite delusions)

0 1 2 3 8 9 (Gdl12)

**90. Do you have any other strong beliefs or convictions?**

(Rate other delusions– rate 2 or 3 if definite delusions) 0 1 2 3 8 9 (Gdl13)

**Describe delusions**

(Gdl14)

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**91. (If any of items from Q 82 – Q 90 rated positive then)**

**Do you believe you deserve this? (Refer to delusions)**

(Rate patient believes that he /she deserve that (delusion)

Yes ☐

No ☐

Uncertain ☐

(Gdl15)

**92. Have you had any unusual beliefs (refer to any kind of delusions) at any time in the past? When was it? How often? Can you describe them?**

(Rate past delusions, rating based on severity and frequency – rate only if there are delusions)

0 1 2 3 8 9 (GdlP)

(0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked)

**(Write a description in the past history section)**

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## HALLUCINATIONS

(Rate 2 or 3 if definite hallucinations)

**93. Does your imagination ever play tricks on you?**

## Do you hear things other people cannot hear?

**(What do you hear?) (What about voices?)**

**(When there is no one about?) (What do they say?)**

(Rate auditory hallucinations) 0 1 2 3 8 9 (Gha1)

(If **Q 93 = 0** then move to **Q 95**)

**94. Do you ever hear several people talking about you between themselves without talking to you directly? Or hear voices commenting on what you do?**

(Rate third person hallucinations or running commentary) 0 1 2 3 8 9 (Gha2)

**95. Do you get strange sensations in your body?**

(Rate somatic hallucinations) 0 1 2 3 8 9 (Gha3)

**96. Do you smell strange odours (smells) that others do not notice?**

(Rate olfactory hallucinations) 0 1 2 3 8 9 (Gha4)

**97. Do you notice unusual taste in your food or drink? (What is it like?)**

**(What is it due to?)**

(Rate gustatory hallucinations) 0 1 2 3 8 9 (Gha5)

**98. Do you have visions or see things that are invisible to other people?**

(Rate visual hallucinations) 0 1 2 3 8 9 (Gha6)

## Describe visual hallucinations

(Gha7)

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If any of the above positive

**99. Do you believe you deserve this?** (Refer to hallucinations)

(Rate patient believes that he / she deserve that (hallucination))

**Yes** ☐ **No** ☐ **Uncertain** ☐ (Gha8)

Rate Q's 100 to 105 as below

0= No evidence in the past

1= Mild (e.g. single mild episode)

2 = Moderate (e.g. persistent or up to two episodes)

3= Severe (e.g. persistent and severe or more than three episodes)

8= When interviewer is unsure about the presence or absence of symptom

9= Not applicable or not asked

**100. Have you ever heard things (voices) that other people couldn't hear?**

**When was it? How often? Can you describe them?**

(Rate past auditory hallucinations – rating based on severity and frequency)

0 1 2 3 8 9 (GhaP1)

**101. Have you ever heard several people talking to themselves without talking to you directly in the past? When was it? How often? Can you describe them?**

(Rate past third person auditory hallucinations - rating based on severity and frequency)

0 1 2 3 8 9 (Ghap2)

**102. Have you ever had strange sensations in your body in the past?**

**When was it? How often? Can you describe them?**

(Rate past somatic hallucinations – rating based on severity and frequency)

0 1 2 3 8 9 (Ghap3)

**103. Have you ever smelt strange odours that others do not notice in the past?**

**When was it? How often? Can you describe them?**

(Rate past olfactory hallucinations – rating based on severity and frequency)

0 1 2 3 8 9 (Ghap4)

**104. Have you ever noticed unusual taste in your food or drink in the past?**

**When was it? How often? Can you describe them?**

(Rate past gustatory hallucinations – rating based on severity and frequency)

0 1 2 3 8 9 (Ghap5)

**105. Have you ever had visions or see things that are invisible to other people in the past? When was it? How often? Can you describe them?**

(Rate past visual hallucinations – rating based on severity and frequency)

0 1 2 3 8 9 (Ghap6)

**(Write a description for Q's 100 to 105 in the past history section)**

## **ORIENTATION**

Rate Q 106,107, 108 and 110:

0= No problem      1= Mild error      2 = Moderate error      3= Severe error  
8= When interviewer is unsure or the patient is unable to answer  
9= Not applicable or not asked

### **106. Some people when they are unwell or upset lose track of time**

**Can you tell me what is the date today?**

**What day of the week it is? (What month? What year?)**

(Rate orientation to time)    0 1 2 3 8 9 (Gor1)

*(If rated 8)*

### **107. (If not) what season is it?**

(Rate orientation)    0 1 2 3 8 9 (Gor2)

### **108. What is the name of this place? Where is it located?**

(Rate orientation to place)    0 1 2 3 8 9 (Go3)

### **109. Do you have difficulty in recognising places you know?**

**E.g. do you get lost in places where you have been before like the local shop?**

(Please rate this symptom based on information obtained from patients relative/carer)

(Rate disorientation to place)    0 1 2 3 8 9 (Gor4)

### **110. Have you ever seen me before?**

(Rate orientation to person)    0 1 2 3 8 9 (Gor5)

### **111. Do you have difficulty in recognising your close relatives and friends?**

(Rate disorientation to person)    0 1 2 3 8 9 (Gor6)

### **112. Please rate if there is an evidence of confabulation**

(Filling the memory gaps with false information)

(Rate confabulation)    0 1 2 3 8 9 (Gor7)

## **MEMORY**

Rate Q 116, 117 and 118:

0= No problem      1= Mild error      2 = Moderate error      3= Severe error  
8= When interviewer is unsure or the patient is unable to answer  
9= Not applicable or not asked

### **113. Have you had any difficulty with your memory?**

If yes (Is that a problem for you?)

(Rate memory impairment) 0 1 2 3 8 9 (Gme1)

### **114. Have you tended to forget things recently?**

What kind of things? Names of your family or close friends?

Where you have put things? Is that a problem to you?

(Rate memory impairment) 0 1 2 3 8 9 (Gme2)

### **115. Do you have to make more effort to remember things than you used to?**

What sort of things? When did you notice this beginning?

(Rate memory impairment) 0 1 2 3 8 9 (Gme3)

### **116. Do you remember my name?**

(Rate recall of your name) 0 1 2 3 8 9 (Gme4)

**May I ask you to remember a name and an address?**

(Give a name and an address with No., Street and town and ask to repeat in 3-5 minutes.)

### **117. Now a simple question I have to ask you. Can you name a national leader such as the Prime minister/President? (Or head person in your village/town)**

(Rate knowledge of national/local leader) 0 1 2 3 8 9 (Gme6)

### **118. Who held that position before him/her?**

(Rate knowledge of last national/local leader) 0 1 2 3 8 9 (Gme7)



## ***DISSOCIATIVE DISORDER***

### **119. Have you had lapses of memory related to a particular event or a stressful situation? Can you describe?**

(Please use your judgement based on all the information available, or any evidence of dissociative amnesia or state, including Fugue, stupor or trance or possession ,in the last month)

*(Rate only dissociative amnesia)* 0 1 2 3 8 9 (Gdis1)

Rate 119 and 120:

0= No problem                      1= Mild                      2 = Moderate                      3= Severe

8= When interviewer is unsure or the patient is unable to answer

9= Not applicable or not asked

### **120. Please rate dissociative motor symptoms such as loss of speech, loss of power of arms or legs, fits atc, when the symptoms are related to stressful events, problems or needs and are not due to physical disorder**

*(Rate dissociative motor symptoms)* 0 1 2 3 8 9 (Gdis2)

## ***INSIGHT***

### **121. Do you think there is anything the matter with you?**

**(Any emotional, mental or physical illness?)**

**(Any problem you need help for?)**

**(What do you think this is due to?)**

*(Rate insight)* 0 1 2 3 8 9 (Gin1)

0 = Full insight    1 = Moderate insight    2 = Limited insight    3 = No insight

8= When interviewer is unsure or the patient is unable to answer

9= Not applicable or not asked

### **122. Do you remember the name and address I asked you to remember?**

*(Rate 3-5 minute recall)* 0 1 2 3 8 9 (Gme5)

Rate 122:

0= complete recall    1= Mild error                      2 = Moderate error                      3= Severe error

8= When interviewer is unsure or the patient is unable to answer

9= Not applicable or not asked

## ***APPEARANCE, BEHAVIOUR AND AFFECT***

<b>Appearance, behaviour and affect</b>	Normal and appropriate	<input type="checkbox"/> (G0)
<b>Social withdrawal and self neglect</b>	<input type="checkbox"/>	(G1)
<b>Agitation</b>	<input type="checkbox"/>	(G2)
<b>Inappropriate (mannerisms)</b>	<input type="checkbox"/>	(G3)
<b>Restlessness</b>	<input type="checkbox"/>	(G4)
<b>Uncooperative</b>	<input type="checkbox"/>	(G5)
<b>Hostile/aggressive</b>	<input type="checkbox"/>	(G6)
<b>Disinhibited</b>	<input type="checkbox"/>	(G7)
<b>Depressed</b>	<input type="checkbox"/>	(G8)
<b>Flat or blunted affect</b>	<input type="checkbox"/>	(G9)
<b>Lability</b>	<input type="checkbox"/>	(G10)
<b>Elation/over activity</b>	<input type="checkbox"/>	(G11)
<b>Anxious/apprehensive</b>	<input type="checkbox"/>	(G12)
<b>Catatonic features</b>	<input type="checkbox"/>	(G13)

*Description of G 13* ----- (G14)

**Speech** ----- (G15)

Rate (G15):      1 = Circumstantial                      2 = Fast  
                      3 = Incoherent                         4 = Irrelevant  
                      5 = Monosyllabic                         6 = Normal  
                      7 = Perseveration                         8 = Slow

<b>Physical disability</b>	<input type="checkbox"/>	(G16)
<b>Low intelligence</b>	<input type="checkbox"/>	(G17)
<b>Emotional withdrawal</b>	<input type="checkbox"/>	(G18)
<b>Poor rapport</b>	<input type="checkbox"/>	(G19)
<b>Poor abstract thinking</b>	<input type="checkbox"/>	(G20)
<b>Lack of spontaneity</b>	<input type="checkbox"/>	(G21)
<b>Poor impulse control</b>	<input type="checkbox"/>	(G22)

## ***SUMMARY (Description and summary of the Mental State Examination)***

## **UNMET NEEDS AND QUALITY OF LIFE**

### **0. How is your financial situation?**

**Do you have any difficulties with your financial situation?**

0 1 2 3 8 9 (H1)

### **1. How satisfied are you with your financial situation?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H2)

### **2. How is your living situation (where you live)?**

**Do you have any difficulties with your living situation?**

0 1 2 3 8 9 (H3)

### **3. How satisfied are you with your living situation?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H4)

### **4. What was your education been like?**

**Do you have any difficulties with your education?**

0 1 2 3 8 9 (H5)

### **5. How satisfied are you with what you achieved with your education?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H6)

### **6. How do you manage every day things that you have to do (activities of daily living)? Do you have any difficulties with your activities of daily living?**

0 1 2 3 8 9 (H7)

### **7. How satisfied are you with the way you are able to do them (activities of daily living)?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H8)

### **8. How is your job (employment) situation?**

**Do you have any difficulties with your job (employment situation) ?**

0 1 2 3 8 9 (H9)

### **9. How satisfied are you with your job (employment situation)?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H10)

### **10. Do you receive any social benefits? (if yes)**

**Do you have any difficulties with your social benefits?**

0 1 2 3 8 9 (H11)

### **11. How satisfied are you with your social benefits?**

(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H12)

- 12. What do you do in your spare time (like recreational activities)?**  
**Do you have any difficulties with recreational activities?**  
0 1 2 3 8 9 (H13)
- 13. How satisfied are you with your recreational activities?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H14)
- 14. How do you get on with people generally (your inter-personal relations)?**  
**Do you have any difficulties with your interpersonal relations?**  
0 1 2 3 8 9 (H15)
- 15. How satisfied are you with your interpersonal relations?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H16)
- 16. How do you get on with members of your family, on the whole (family relations)? Do you have any difficulties with your family relations?**  
0 1 2 3 8 9 (H17)
- 17. How satisfied are you with your family relations?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H18)
- 18. How is your health in general? Do you take any exercise?**  
**Do you have any difficulties with health and disability?**  
0 1 2 3 8 9 (H19)
- 19. How satisfied are you with your state of health?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H20)
- 20. Do you have any difficulties with side effects of medication?**  
0 1 2 3 8 9 (H21)
- 21. How satisfied are you that your medication is effective?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H22)
- 22. In general how satisfied are you with your life at present?**  
(0=Very Satisfied, 1= Fairly satisfied, 2=neither satisfied nor dissatisfied,  
3= some what dissatisfied, 4= Very dissatisfied) 0 1 2 3 4 (H23)
- 23. Please make a note if there is any disagreement between the service user and the interviewer**  
(H24)

## **RISK ASSESSMENT**

### ***SELF HARM***

#### ***Present***

**Have you done anything to harm yourself recently?**

**What did you do? Did you intend to end your life?**

No evidence of self harm ☐ (Ish0)

Method used (Ish1)	Severity (Ish2)	Intent (Ish3)

(Rate Ish2 and Ish3: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

#### ***Past***

**Have you done anything like this in the past?**

No evidence of self harm ☐ (Ish0P)

Method used (Ish4)	Severity (Ish5)	Intent (Ish6)

(Rate Ish5 and Ish6: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

### ***VIOLENCE /AGGRESSION***

#### ***Present***

**Have you done anything to upset other people?**

**Have you actually hit anyone? Have you damaged any property?**

**Is there any particular reason why you might harm others?**

**Have you committed any sexual offence?**

No evidence of violence/aggression ☐ (Iv0)

Method used (Iv1)	Severity (Iv2)	Intent (Iv3)

(Rate Iv2 and Iv3: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

**Past**

**Have you done anything like this in the past?**

No evidence of violence/aggression ☐ (Iv0P)

Method used (Iv4)	Severity (Iv5)	Intent (Iv6)

(Rate Iv5 and Iv6: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

**SELF NEGLECT**

**Present**

**Have you had any problems in taking care of yourself or where you live?**

**Have you been neglecting yourself? What has been the difficulty?**

No evidence of self neglect ☐ (Isn0)

Method of neglect (Isn1)	Severity (Isn2)

(Rate Isn2: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

**Past**

**Have you had any problems in taking care of yourself or where you live at any time in the past?**

**Has there been a period when you neglected yourself any time in the past?**

No evidence of self neglect ☐ (Isn3)

Method of neglect (Isn4)	Severity (Isn5)

(Rate Isn5: 0 = Nil 1 = Mild 2 = Moderate 3 = Severe)

## **DIAGNOSIS**

### ***DIAGNOSIS (Main)***

<b>Diagnosis (Jd1)</b>	<b>ICD 10 (Jd2)</b>

### ***OTHER DIAGNOSIS***

<b>Diagnosis (Jd1)</b>	<b>ICD 10 (Jd2)</b>

## **INVESTIGATIONS**

**Blood**

**Urine**

**Radiology and Neuroimaging**

**EEG**

**ECG**

**Lithium monitoring**

**Clozaril**

**Psychometric**

**Third party information**

## **CAREPLAN**

**CPA level**

**MHA status**

**Diagnosis**

**Medications**

Medication(A11)	Dose (A12)	Route (A13)	Frequency (A14)

**Other details including treatment compliance and risk management**

--

**Treatment compliance**

Good  
Doubtful  
Poor  
Intermittent  
Not known

**Outcome of Assessment**

Continue in Assessment/Treatment  
Discharged back to GP/referrer  
Discharged from secondary mental health services  
Follow up by crisis resolution and home treatment team  
Follow up by Liaison mental health services  
In patient admission  
No services offered  
Ongoing Community mental health team care

Interventions	Agencies

Risks	Management plan
Self harm	
Violence	
Self neglect	

Care coordinator	Occupation	Telephone number

**Contact person/place if in crisis -**



## **CHECKLIST**

**The following has been explained to the service user**

Diagnosis  
Treatment options  
The care plan and CPA  
Actions to be taken in crisis

**The following has been explained to the family or carers**

Not present  
Diagnosis  
Treatment options  
The care plan and CPA  
Actions to be taken in crisis

**Please record the validity/accuracy of interview ratings**

Accurate ratings  
Some doubtful ratings  
Mostly doubtful ratings

## **INTERVIEWER DETAILS**

<b>Date</b>	
<b>Interview ID</b>	
<b>Name</b>	
<b>Location</b>	
<b>Profession</b>	
<b>GP diagnosis</b>	
<b>Remark</b>	

## Appendix 2

### **GMHAT/Full output: Mental State Examination positive rating list**

## MENTAL STATE EXAMINATION POSITIVE RATING LIST

Interview Reference :

Name :

Q.No.	HEADING	RATING
0	( worry)	
1	( worry)	
2	( anxiety)	
3	( tension)	
4	( autonomic symptoms)	
5	( panic attacks)	
6	( frequency of panic attacks)	
7	( sudden onset of panic attacks)	
8	( panic attack not associated with a specific cause)	
9	( panic attacks at least lasting some minutes)	
10	( past anxiety / panic symptoms - rating based on severity and frequency)	
11	( concentration impairment)	
12	( concentration)	
14	( depressed mood)	
15	( tearfulness/ crying spells)	
16	( diurnal variation of mood)	
17	( Loss of interests)	
18	( loss of joy)	
19	( lack of energy)	
20	( loss of confidence)	
21	( guilty feelings)	
22	( psycho-motor retardation/agitation)	
23	( past episodes of depression - rating based on severity and frequency)	
24	( hopelessness)	
25	( suicidal thoughts held any time)	
26	( acts of self harm)	
27	( recent suicidal ideas)	
28	( sleep difficulties)	
29	( initial insomnia)	
30	( interruption of sleep)	
31	( early morning wakening)	
32	( when sleep disturbance is due to other causes such as pain, physical problems or noise etc)	
33	( Nightmares)	

34	( appetite loss/ increase)	
35	( weight loss/ gain)	
36	( loss/increase of libido)	
37	( avoidance of fattening food)	
38	( poor control over eating)	
39	( preoccupation of being fat)	
40	( if food dominates life)	
41	( self induced vomiting/ other measures to reduce weight)	
42	( loss of periods)	
43	( past eating disorders)	
44	( only persistent preoccupation with serious illness)	
45	( inability to ease the condition)	
46	( visits to several doctors or health providers for the same condition. Don't include referrals or second opinions etc.)	
47	(e refusal to accept medical reassurance)	
48	( Obsessive-compulsive checking, don't include poor memory, lapse of concentration etc)	
49	( compulsions)	
50	( compulsive hand washing)	
51	( compulsions)	
52	( inability to resist)	
53	( Obsessions)	
54	( obsessions adversely affecting daily life)	
55	( past episodes of OCD-rating based on severity and frequency)	
56	( agoraphobia)	
57	( specific phobia)	
58	( social phobia)	
59	( degree of fear)	
60	( degree of avoidance)	
61	( past phobias - rating based on severity and frequency)	
62	( irritability)	
63	( increased energy level)	
64	( elated mood)	
65	( pressure of thoughts)	
66	( over activity)	
67	( ideas of special ability, rate 2or 3 if definite delusions)	
68	( ideas of special identity, rate 2or 3 if definite delusions)	
70	( past manic symptoms, rating based on severity and frequency)	
71	( thinking difficulties)	
72	( passivity – Rate 2 or 3 only if definite delusions)	

73	( thought insertion - Rate 2 or 3 only if definite delusions)	
74	( thought broadcast - Rate 2 or 3 only if definite delusions)	
75	( thought withdrawal - Rate 2 or 3 only if definite delusions)	
76	( thought echo - Rate 2 or 3 only if definite thought echo)	
77	( past through disorder, rating based on severity and frequency)	
78	( ideas of reference – rate 2 or 3 if definite delusions)	
80	( Ideas/delusions of persecution - rate 2 or 3 if definite delusions)	
82	( delusions of jealousy - rate 2 or 3 if definite delusions)	
83	( delusions of litigation - rate 2 or 3 if definite delusions)	
84	( delusions of love -rate 2 or 3 if definite delusions)	
85	( delusions of misshapen body - rate 2 or 3 if definite delusions)	
86	( delusions of grandeur - rate 2 or 3 if definite delusions)	
87	( delusions of infestation - rate 2 or 3 if definite delusions)	
88	( nihilistic delusions -rate 2 or 3 if definite delusions)	
89	( hypochondriacal delusions -rate 2 or 3 if definite delusions)	
90	( other Delusions - rate 2 or 3 if definite delusions)	
92	( past delusions, rating based on severity and frequency - rate only if there are delusions)	
93	( auditory hallucinations)	
94	( third person hallucinations or running commentary)	
95	( somatic hallucinations)	
96	( olfactory hallucinations)	
97	( gustatory hallucinations)	
98	( visual hallucinations)	
100	( past auditory hallucinations, rating based on severity and frequency)	
101	( past third person auditory hallucinations, rating based on severity and frequency)	
102	( past somatic hallucinations, rating based on severity and frequency)	
103	( past olfactory hallucinations, rating based on severity and frequency)	
104	( past gustatory hallucinations, rating based on severity and frequency)	
105	( past visual hallucinations, rating based on severity and frequency)	
106	( orientation to time)	
108	( orientation to place)	
109	( disorientation to place)	
110	( orientation to person)	
111	( disorientation to person)	
112	( Confabulation)	
113	( memory impairment)	
114	( memory impairment)	
115	( memory impairment)	

116	( recall of your name)	
117	( knowledge of national / local leader)	
118	( knowledge of last national / local leader)	
119	( only dissociative amnesia)	
120	( dissociative motor symptoms)	
121	( insight)	
122	( 3-5 minute recall)	

### PTSD POSITIVE RATING LIST

Q.No.	HEADING	RATING
1	What happened after (the stressful event)? Did you have unpleasant dreams? What was happening in the dreams? How did you feel when you woke up?	
2	How often did they occur at the time?(How many times during the last month)	
3	Have you had moments when you were wide awake during the daytime, when you suddenly saw (the stressful event) happening again as if they were in front of your eyes? Could you stop it?	
4	How often did they occur at the time ?(During the last month)	
5	Have you tried going back to where (the stressful event) happened? (If not) Why is that? Is it because you get too frightened ?	
6	Did you try to avoid it?	
7	After (the stressful event) did you find yourself very irritable and angry? Did other people complain about you?	
8	After (the stressful event) have you had other difficulties such as becoming too watchful of your surroundings (vigilant) or jumpy?	

## **Appendix 3**

### **The Global Mental Health Assessment Tool/Full Version (GMHAT/Full) report.**

**This report is generated following completion of the assessment.**

## **Global Mental Health Assessment (GMHAT) Report**

**Patient Name** : **NHS Number** :  
**Date of Birth** : **GP** :  
**Address** : **Interview Ref** :

Dear Dr.

I Interviewed XX on the XX at XX. The details of my assessment are as follows:

---

### **Presenting Problems**

Problem / Symptom

Duration of present episode :

**Nature of Recent Stress**

### **Past Mental Health**

Age	Problem/Diagnosis	Duration	Intervention	Outcome
-----	-------------------	----------	--------------	---------

Overall course of illness:

### **Physical health**

---

### **Family History**

---

### **Social History**

Childhood

Schooling

Occupational History

Psychosexual History

Forensic History

Pre Morbid Personality

Current Social Circumstances

---

### **Substance Misuse**

---



Mental State Examination  
**Appearance and Behaviour**

Symptom	Rating
Worry	
General Anxiety	
Panic Attacks	
Concentration	
Depressed mood	
Suicidal Thoughts	
Sleep Disturbance	
Other sleep difficulties	
Loss of Appetite	
Loss of Weight	
Reduced Interest	
Eating Disorder	
Hypochondriasis	
Obsessive Symptoms	
Agoraphobia	
Specific Phobia	
Social Phobia	
Avoidance of Phobia	
Irritability	
Elated mood	
Thinking difficulties	
Passivity	
Thought insertion	
Thought broadcast	
Thought withdrawal	
Thought echo	
Delusional idea-reference	
Delusional idea-persecution	
Delusional idea-jealousy	
Delusional idea-litigation	
Delusional idea-love	
Delusional idea-misshapen body	
Delusional idea-grandeur	
Delusional idea-infestation	
Delusional idea-Nihilistic	
Delusional idea-hypochondriacal	
Delusional idea-other	
Hallucinations - auditory	
Hallucinations - third Person	

Hallucinations - somatic	
Hallucinations - olfactory	
Hallucinations - gustatory	
Hallucinations - visual	
Orientation	
Memory difficulties	
Insight	

### **Risk Assessment**

<b>Risk</b>	<b>Indicators</b>	<b>Severity(Score)</b>
Self Harm	<ul style="list-style-type: none"> <li>o Self Harm - Past</li> <li>o Self Harm - Present</li> <li>o Suicidal Thoughts</li> <li>o Alcohol problems</li> </ul>	Self Harm -
Violence	<ul style="list-style-type: none"> <li>o Violence - Past</li> <li>o Violence - Present</li> <li>o Forensic history</li> <li>o Delusional ideation</li> <li>o Alcohol problems</li> </ul>	Violence -
Self Neglect	<ul style="list-style-type: none"> <li>o Self Neglect - Past</li> <li>o Self Neglect - Present</li> <li>o Unmet Needs</li> </ul>	Self Neglect -

### **Investigations**

<b>ICD Diagnosis :</b>

**Areas of need**

Unmet Needs	Ongoing Difficulties	Satisfaction
Living Situation		
Education		
Activities		
Employment		
Social Benefits		
Recreation		
Interpersonal		
Family relation		
Health		
Side Effects		

**Overall satisfaction with life:**

**Third Party (Carer/Other) Information****Care Plan****Risk Management:**

**Follow up :**

## **Appendix 4**

**Test Retest Reliability: Results of the statistical analysis  
Agreement at the symptom level.**

## Worry

1. (GW1 – 0)

Second test

	Case	Non-case		
Case	13		0	13
Non-case	3		14	17
	16		14	30

Exact agreement	0.90	Sensitivity	0.81
Chance agreement	0.50	Specificity	1.00
Kappa	0.80	Positive predictive value	1.00
Standard error	0.11	Negative predictive value	0.82
95% Confidence interval (lower limit)	0.59		
95% Confidence interval (upper limit)	1.01		

## Anxiety

### 2. GA1 – 2

	Case	Non-case		
Case	6		1	7
Non-case	3		20	23
	9		21	30

Exact agreement	0.87	Sensitivity	0.67
Chance agreement	0.61	Specificity	0.95
Kappa	0.66	Positive predictive value	0.85
Standard error	0.16	Negative predictive value	0.87
95% Confidence interval (lower limit)	0.35		
95% Confidence interval (upper limit)	0.97		

### 3. GA4 – 5

	Case	Non-case		
Case	3		1	4
Non-case	3		23	26
	6		24	30

Exact agreement	0.87	Sensitivity	0.50
Chance agreement	0.72	Specificity	0.96
Kappa	0.52	Positive predictive value	0.75
Standard error	0.22	Negative predictive value	0.88
95% Confidence interval (lower limit)	0.09		
95% Confidence interval (upper limit)	0.96		

### 4. Gap – 11

	Case	Non-case		
Case	8		2	10
Non-case	5		15	20
	13		17	30

Exact agreement	0.77	Sensitivity	0.62
Chance agreement	0.52	Specificity	0.88
Kappa	0.51	Positive predictive value	0.80
Standard error	0.16	Negative predictive value	0.75
95% Confidence interval (lower limit)	0.19		
95% Confidence interval (upper limit)	0.83		

## Concentration

### 5. GC1 – 12

	Case	Non-case		
Case	4		4	8
Non-case	0		22	22
	4		26	30
Exact agreement	0.87	Sensitivity		1.00
Chance agreement	0.67	Specificity		0.85
Kappa	0.59	Positive predictive value		0.50
Standard error	0.19	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.22			
95% Confidence interval (upper limit)	0.96			

### 6. GC2 – 12 A

	Case	Non-case		
Case	0		2	2
Non-case	3		25	28
	3		27	30
Exact agreement	0.83	Sensitivity		0.00
Chance agreement	0.85	Specificity		0.93
Kappa	-0.09	Positive predictive value		0.00
Standard error	0.44	Negative predictive value		0.89
95% Confidence interval (lower limit)	-0.96			
95% Confidence interval (upper limit)	0.78			

### 7. GC3 – 13

	Case	Non-case		
Case	2		0	2
Non-case	1		4	5
	3		4	7
Exact agreement	0.86	Sensitivity		0.67
Chance agreement	0.53	Specificity		1.00
Kappa	0.70	Positive predictive value		1.00
Standard error	0.28	Negative predictive value		0.80
95% Confidence interval (lower limit)	0.14			
95% Confidence interval (upper limit)	1.25			

lx



## Depression

8. Gdp1 – 14

	Case	Non-case		
Case	8		0	8
Non-case	5		17	22
	13		17	30
Exact agreement	0.83	Sensitivity		0.62
Chance agreement	0.53	Specificity		1.00
Kappa	0.64	Positive predictive value		1.00
Standard error	0.15	Negative predictive value		0.77
95% Confidence interval (lower limit)	0.36			
95% Confidence interval (upper limit)	0.93			

9. Gdp6 – 17

	Case	Non-case		
Case	3		1	4
Non-case	2		24	26
	5		25	30
Exact agreement	0.90	Sensitivity		0.60
Chance agreement	0.74	Specificity		0.96
Kappa	0.61	Positive predictive value		0.75
Standard error	0.21	Negative predictive value		0.92
95% Confidence interval (lower limit)	0.19			
95% Confidence interval (upper limit)	1.03			

10. Gdp7 – 18

	Case	Non-case		
Case	3		1	4
Non-case	1		25	26
	4		26	30
Exact agreement	0.93	Sensitivity		0.75
Chance agreement	0.77	Specificity		0.96
Kappa	0.71	Positive predictive value		0.75
Standard error	0.20	Negative predictive value		0.96
95% Confidence interval (lower limit)	0.33			
95% Confidence interval (upper limit)	1.10			



11. Gdp8 – 19

	Case	Non-case		
Case	9		1	10
Non-case	3		17	20
	12		18	30
Exact agreement	0.87	Sensitivity		0.75
Chance agreement	0.53	Specificity		0.94
Kappa	0.71	Positive predictive value		0.90
Standard error	0.13	Negative predictive value		0.85
95% Confidence interval (lower limit)	0.45			
95% Confidence interval (upper limit)	0.97			

12. Gdp9 – 20

	Case	Non-case		
Case	6		0	6
Non-case	4		20	24
	10		20	30
Exact agreement	0.87	Sensitivity		0.60
Chance agreement	0.60	Specificity		1.00
Kappa	0.67	Positive predictive value		1.00
Standard error	0.16	Negative predictive value		0.83
95% Confidence interval (lower limit)	0.36			
95% Confidence interval (upper limit)	0.97			

13. Gdp10 – 21

	Case	Non-case		
Case	6		2	8
Non-case	1		21	22
	7		23	30
Exact agreement	0.90	Sensitivity		0.86
Chance agreement	0.62	Specificity		0.91
Kappa	0.73	Positive predictive value		0.75
Standard error	0.15	Negative predictive value		0.95
95% Confidence interval (lower limit)	0.45			
95% Confidence interval (upper limit)	1.02			

#### 14. Gdp11 – 22

	Case	Non-case		
Case	7		0	7
Non-case	3		20	23
	10		20	30
Exact agreement	0.90	Sensitivity		0.70
Chance agreement	0.59	Specificity		1.00
Kappa	0.76	Positive predictive value		1.00
Standard error	0.13	Negative predictive value		0.87
95% Confidence interval (lower limit)	0.50			
95% Confidence interval (upper limit)	1.02			

#### Gdp12 and Gdp13 Kappa not calculated

No statistics are computed because GDP12\_2 and GDP12\_2B are constants.

No statistics are computed because GDP13\_2 and GDP13\_2B are constants.

#### 15. Gdp 14 – 23

	Case	Non-case		
Case	18		0	18
Non-case	2		10	12
	20		10	30
Exact agreement	0.93	Sensitivity		0.90
Chance agreement	0.53	Specificity		1.00
Kappa	0.86	Positive predictive value		1.00
Standard error	0.10	Negative predictive value		0.83
95% Confidence interval (lower limit)	0.67			
95% Confidence interval (upper limit)	1.05			

**Suicide**

16. Gsu1 – 24

	Case	Non-case		
Case	6		0	6
Non-case	0		24	24
	6		24	30
Exact agreement	1.00	Sensitivity		1.00
Chance agreement	0.68	Specificity		1.00
Kappa	1.00	Positive predictive value		1.00
Standard error	0.00	Negative predictive value		1.00
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

17. Gsu 2 – 25

	Case	Non-case		
Case	11		1	12
Non-case	1		16	17
	12		17	29
Exact agreement	0.93	Sensitivity		0.92
Chance agreement	0.51	Specificity		0.94
Kappa	0.86	Positive predictive value		0.92
Standard error	0.10	Negative predictive value		0.94
95% Confidence interval (lower limit)	0.67			
95% Confidence interval (upper limit)	1.05			

**Sleep**

18. Gsl1 – 28

	Case	Non-case		
Case	13		1	14
Non-case	0		16	16
	13		17	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.50	Specificity		0.94
Kappa	0.93	Positive predictive value		0.93
Standard error	0.07	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.80			
95% Confidence interval (upper limit)	1.06			



## Appetite

19. Gaw1 – 34

	Case	Non-case		
Case	4	0	4	
Non-case	2	24	26	
	6	24	30	
Exact agreement	0.93	Sensitivity	0.67	
Chance agreement	0.72	Specificity	1.00	
Kappa	0.76	Positive predictive value	1.00	
Standard error	0.16	Negative predictive value	0.92	
95% Confidence interval (lower limit)	0.44			
95% Confidence interval (upper limit)	1.08			

## Weight

20. Gaw4 – 35

	Case	Non-case		
Case	5	1	6	
Non-case	0	24	24	
	5	25	30	
Exact agreement	0.97	Sensitivity	1.00	
Chance agreement	0.70	Specificity	0.96	
Kappa	0.89	Positive predictive value	0.83	
Standard error	0.11	Negative predictive value	1.00	
95% Confidence interval (lower limit)	0.67			
95% Confidence interval (upper limit)	1.10			

## Libido

21. Gaw7 – 36

	Case	Non-case		
Case	1		1	2
Non-case	0		28	28
	1		29	30

Exact agreement	0.97	Sensitivity	1.00
Chance agreement	0.90	Specificity	0.97
Kappa	0.65	Positive predictive value	0.50
Standard error	0.34	Negative predictive value	1.00
95% Confidence interval (lower limit)	-0.02		
95% Confidence interval (upper limit)	1.32		

## Eating Disorder

22. Gea1, Gea2 and Geap **Kappa not calculated**

No statistics are computed because GEA1\_2 and GEA1\_2B are constants.

No statistics are computed because GEA2\_2 and GEA2\_2B are constants.

No statistics are computed because GEAp\_2 and GEAp\_2B are constants.

## Hypochondriasis

23. Gh1 – 44

	Case	Non-case		
Case	3		0	3
Non-case	0		27	27
	3		27	30

Exact agreement	1.00	Sensitivity	1.00
Chance agreement	0.82	Specificity	1.00
Kappa	1.00	Positive predictive value	1.00
Standard error	0.00	Negative predictive value	1.00
95% Confidence interval (lower limit)	1.00		
95% Confidence interval (upper limit)	1.00		

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*Testing the psychometric properties of a standardised mental health assessment tool - The Global Mental Health Assessment Tool/Full version (GMHAT/Full) - Dr. Mahesh Mahabaleshwar Odiyoor*

**Obsessions and compulsions**

**24. Gob1, Gob3 and Gob6 Kappa not calculated**

No statistics are computed because GOB1\_2 and GOB1\_2B are constants.  
No statistics are computed because GOB3\_2 and GOB3\_2B are constants.  
No statistics are computed because GOB6\_2 and GOB6\_2B are constants.

**25. Gobp –**

	Case	Non-case		
Case	1	0	1	
Non-case	0	29	29	
	1	29	30	
Exact agreement	1.00	Sensitivity	1.00	
Chance agreement	0.94	Specificity	1.00	
Kappa	1.00	Positive predictive value	1.00	
Standard error	0.00	Negative predictive value	1.00	
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

### Phobias

26. Gph1 – 56

	Case	Non-case		
Case	2		1	3
Non-case	2		25	27
	4		26	30
Exact agreement	0.90	Sensitivity		0.50
Chance agreement	0.79	Specificity		0.96
Kappa	0.52	Positive predictive value		0.67
Standard error	0.27	Negative predictive value		0.93
95% Confidence interval (lower limit)	0.00			
95% Confidence interval (upper limit)	1.04			

27. Gph2 – 57

No statistics are computed because Gph2\_2B is a constant.

28. Gph3 – 58

	Case	Non-case		
Case	1		1	2
Non-case	0		28	28
	1		29	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.90	Specificity		0.97
Kappa	0.65	Positive predictive value		0.50
Standard error	0.34	Negative predictive value		1.00
95% Confidence interval (lower limit)	-0.02			
95% Confidence interval (upper limit)	1.32			

29. Gphp – 61

	Case	Non-case		
Case	7		1	8
Non-case	1		21	22
	8		22	30
Exact agreement	0.93	Sensitivity		0.88
Chance agreement	0.61	Specificity		0.95
Kappa	0.83	Positive predictive value		0.88
Standard error	0.12	Negative predictive value		0.95
95% Confidence interval (lower limit)	0.60			
95% Confidence interval (upper limit)	1.06			



## Mania

30. Gma1 – 62

	Case	Non-case		
Case	6		1	7
Non-case	1		22	23
	7		23	30
Exact agreement	0.93	Sensitivity		0.86
Chance agreement	0.64	Specificity		0.96
Kappa	0.81	Positive predictive value		0.86
Standard error	0.13	Negative predictive value		0.96
95% Confidence interval (lower limit)	0.56			
95% Confidence interval (upper limit)	1.06			

31. Gma2 – 63

	Case	Non-case		
Case	2		1	3
Non-case	0		27	27
	2		28	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.85	Specificity		0.96
Kappa	0.78	Positive predictive value		0.67
Standard error	0.21	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.36			
95% Confidence interval (upper limit)	1.20			

32. Gma3 – 64

	Case	Non-case		
Case	2		2	4
Non-case	0		26	26
	2		28	30
Exact agreement	0.93	Sensitivity		1.00
Chance agreement	0.82	Specificity		0.93
Kappa	0.63	Positive predictive value		0.50
Standard error	0.25	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.14			
95% Confidence interval (upper limit)	1.12			



33. Gmap – 70

	Case	Non-case		
Case	7		1	8
Non-case	0		22	22
	7		23	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.62	Specificity		0.96
Kappa	0.91	Positive predictive value		0.88
Standard error	0.09	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.74			
95% Confidence interval (upper limit)	1.08			

### Thought Disorder

34. Gth1 – 71

	Case	Non-case		
Case	8	2	10	
Non-case	1	19	20	
	9	21	30	
Exact agreement	0.90	Sensitivity	0.89	
Chance agreement	0.57	Specificity	0.90	
Kappa	0.77	Positive predictive value	0.80	
Standard error	0.13	Negative predictive value	0.95	
95% Confidence interval (lower limit)	0.52			
95% Confidence interval (upper limit)	1.02			

35. Gth2 – 72

	Case	Non-case		
Case	6	2	8	
Non-case	1	21	22	
	7	23	30	
Exact agreement	0.90	Sensitivity	0.86	
Chance agreement	0.62	Specificity	0.91	
Kappa	0.73	Positive predictive value	0.75	
Standard error	0.15	Negative predictive value	0.95	
95% Confidence interval (lower limit)	0.45			
95% Confidence interval (upper limit)	1.02			

36. Gth3 – 73

	Case	Non-case		
Case	8	1	9	
Non-case	1	20	21	
	9	21	30	
Exact agreement	0.93	Sensitivity	0.89	
Chance agreement	0.58	Specificity	0.95	
Kappa	0.84	Positive predictive value	0.89	
Standard error	0.11	Negative predictive value	0.95	
95% Confidence interval (lower limit)	0.63			
95% Confidence interval (upper limit)	1.05			

37. Gth4 – 74

	Case	Non-case		
Case	8		1	9
Non-case	0		21	21
	8		22	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.59	Specificity		0.95
Kappa	0.92	Positive predictive value		0.89
Standard error	0.08	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.76			
95% Confidence interval (upper limit)	1.08			

38. Gth5- 75

	Case	Non-case		
Case	3		0	3
Non-case	0		27	27
	3		27	30
Exact agreement	1.00	Sensitivity		1.00
Chance agreement	0.82	Specificity		1.00
Kappa	1.00	Positive predictive value		1.00
Standard error	0.00	Negative predictive value		1.00
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

39. Gth6. – 76

No statistics are computed because Gth6\_2 is a constant.

40. Gthp – 77

	Case	Non-case		
Case	13		2	15
Non-case	1		14	15
	14		16	30
Exact agreement	0.90	Sensitivity		0.93
Chance agreement	0.50	Specificity		0.88
Kappa	0.80	Positive predictive value		0.87
Standard error	0.11	Negative predictive value		0.93
95% Confidence interval (lower limit)	0.59			
95% Confidence interval (upper limit)	1.01			

## Delusions

41 – Gdl1 – 78

	Case	Non-case		
Case	12		1	13
Non-case	0		17	17
	12		18	30
Exact agreement	0.97	Sensitivity		1.00
Chance agreement	0.51	Specificity		0.94
Kappa	0.93	Positive predictive value		0.92
Standard error	0.07	Negative predictive value		1.00
95% Confidence interval (lower limit)	0.80			
95% Confidence interval (upper limit)	1.06			

42. Gdl2 – 79

No statistics are computed because Gd2\_2 and Gd2\_2B are constants.

43. Gdl3 – 80

	Case	Non-case		
Case	11		0	11
Non-case	2		17	19
	13		17	30
Exact agreement	0.93	Sensitivity		0.85
Chance agreement	0.52	Specificity		1.00
Kappa	0.86	Positive predictive value		1.00
Standard error	0.09	Negative predictive value		0.89
95% Confidence interval (lower limit)	0.68			
95% Confidence interval (upper limit)	1.05			

44. Gdl4

No statistics are computed because Gd4\_2 and Gd4\_2B are constants.



45. Gdlp – 92

	Case	Non-case		
Case	19		1	20
Non-case	2		8	10
	21		9	30
Exact agreement	0.90	Sensitivity		0.90
Chance agreement	0.57	Specificity		0.89
Kappa	0.77	Positive predictive value		0.95
Standard error	0.13	Negative predictive value		0.80
95% Confidence interval (lower limit)	0.52			
95% Confidence interval (upper limit)	1.02			

### Hallucinations

46. Gha1- 93

	Case	Non-case		
Case	9	2	11	
Non-case	1	18	19	
	10	20	30	
Exact agreement	0.90	Sensitivity	0.90	
Chance agreement	0.54	Specificity	0.90	
Kappa	0.78	Positive predictive value	0.82	
Standard error	0.12	Negative predictive value	0.95	
95% Confidence interval (lower limit)	0.54			
95% Confidence interval (upper limit)	1.02			

47. Gha3 – 95

No statistics are computed because GHA3\_2 is a constant.

48. Gha4 – 96

	Case	Non-case		
Case	1	0	1	
Non-case	1	28	29	
	2	28	30	
Exact agreement	0.97	Sensitivity	0.50	
Chance agreement	0.90	Specificity	1.00	
Kappa	0.65	Positive predictive value	1.00	
Standard error	0.34	Negative predictive value	0.97	
95% Confidence interval (lower limit)	-0.02			
95% Confidence interval (upper limit)	1.32			

49. Gha5 – 97

	Case	Non-case		
Case	1	0	1	
Non-case	0	29	29	
	1	29	30	
Exact agreement	1.00	Sensitivity	1.00	
Chance agreement	0.94	Specificity	1.00	
Kappa	1.00	Positive predictive value	1.00	
Standard error	0.00	Negative predictive value	1.00	
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

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50. Gha6 – 98

	Case	Non-case		
Case	1	0	1	
Non-case	1	28	29	
	2	28	30	

Exact agreement	0.97	Sensitivity	0.50
Chance agreement	0.90	Specificity	1.00
Kappa	0.65	Positive predictive value	1.00
Standard error	0.34	Negative predictive value	0.97
95% Confidence interval (lower limit)	-0.02		
95% Confidence interval (upper limit)	1.32		

51. Ghap1 – 100

	Case	Non-case		
Case	10	1	11	
Non-case	2	17	19	
	12	18	30	

Exact agreement	0.90	Sensitivity	0.83
Chance agreement	0.53	Specificity	0.94
Kappa	0.79	Positive predictive value	0.91
Standard error	0.12	Negative predictive value	0.89
95% Confidence interval (lower limit)	0.56		
95% Confidence interval (upper limit)	1.02		

52. Ghap3 – 102

	Case	Non-case		
Case	2	0	2	
Non-case	1	27	28	
	3	27	30	

Exact agreement	0.97	Sensitivity	0.67
Chance agreement	0.85	Specificity	1.00
Kappa	0.78	Positive predictive value	1.00
Standard error	0.21	Negative predictive value	0.96
95% Confidence interval (lower limit)	0.36		
95% Confidence interval (upper limit)	1.20		

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## 53. Ghap4 – 103

	Case	Non-case		
Case	1		0	1
Non-case	0		29	29
	1		29	30
Exact agreement	1.00	Sensitivity		1.00
Chance agreement	0.94	Specificity		1.00
Kappa	1.00	Positive predictive value		1.00
Standard error	0.00	Negative predictive value		1.00
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

## 54. Ghap5 – 104

	Case	Non-case		
Case	1		0	1
Non-case	0		29	29
	1		29	30
Exact agreement	1.00	Sensitivity		1.00
Chance agreement	0.94	Specificity		1.00
Kappa	1.00	Positive predictive value		1.00
Standard error	0.00	Negative predictive value		1.00
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

## 55. Ghap6 – 105

	Case	Non-case		
Case	3		1	4
Non-case	1		25	26
	4		26	30
Exact agreement	0.93	Sensitivity		0.75
Chance agreement	0.77	Specificity		0.96
Kappa	0.71	Positive predictive value		0.75
Standard error	0.20	Negative predictive value		0.96
95% Confidence interval (lower limit)	0.33			
95% Confidence interval (upper limit)	1.10			



## Orientation

56 – Gor1-Gor7 and Gme1 – Gme4

No statistics are computed because the value is a constant.

## Memory

57. Gme5 – 122

	Case	Non-case		
Case	1		3	4
Non-case	1		25	26
	2		28	30

Exact agreement	0.87	Sensitivity	0.50
Chance agreement	0.82	Specificity	0.89
Kappa	0.27	Positive predictive value	0.25
Standard error	0.34	Negative predictive value	0.96
95% Confidence interval (lower limit)	-0.40		
95% Confidence interval (upper limit)	0.94		

58. Gme6, Gme7, Gdis1 and Gdis2

No statistics are computed because the value is a constant.

## Insight

59. Gin1 – 121

	Case	Non-case		
Case	15		0	15
Non-case	1		14	15
	16		14	30

Exact agreement	0.97	Sensitivity	0.94
Chance agreement	0.50	Specificity	1.00
Kappa	0.93	Positive predictive value	1.00
Standard error	0.07	Negative predictive value	0.93
95% Confidence interval (lower limit)	0.80		
95% Confidence interval (upper limit)	1.06		

## **Appendix 5**

**Test Retest Reliability: Results of the statistical analysis  
Agreement at the syndromal level.**

### 1. Organic

	R1	R2		
		Mild	Moderate	Severe
Mild	27	0	0	27
Moderate	2	1	0	3
Severe	0	0	0	0
	29	1	0	30
Exact agreement	0.93	0.03	0.97	
Chance agreement	0.87	0.06	0.94	
Kappa	0.47			
Standard error	0.52			
95% Confidence interval (lower limit)	-0.54			
95% Confidence interval (upper limit)	1.49			

### 2. Schizophrenia

	R1	R2		
		Mild	Moderate	Severe
Mild	10	0	1	11
Moderate	0	5	0	5
Severe	1	0	13	14
	11	5	14	30
Exact agreement	0.93	0.00	0.93	
Chance agreement	0.38	0.14	0.52	
Kappa	0.86			
Standard error	0.09			
95% Confidence interval (lower limit)	0.68			
95% Confidence interval (upper limit)	1.05			

### 3. Mania ML

	R1	R2		
		Mild	Moderate	Severe
Mild	25	0	1	26
Moderate	1	1	0	2
Severe	0	0	2	2
	26	1	3	30
Exact agreement	0.93	0.02	0.95	
Chance agreement	0.76	0.05	0.81	
Kappa	0.74			
Standard error	0.21			
95% Confidence interval (lower limit)	0.33			
95% Confidence interval (upper limit)	1.15			

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#### 4. Mania MI

	R1	R2			
		Mild	Moderate	Severe	
Mild		27	1	0	28
Moderate		1	0	0	1
Severe		0	0	1	1
		28	1	1	30
Exact agreement		0.93	0.03	0.97	
Chance agreement		0.87	0.03	0.91	
Kappa		0.65			
Standard error		0.35			
95% Confidence interval (lower limit)		-0.03			
95% Confidence interval (upper limit)		1.33			

#### 5. Mania MO

	R1	R2			
		Mild	Moderate	Severe	
Mild		29	0	0	29
Moderate		1	0	0	1
Severe		0	0	0	0
		30	0	0	30
Exact agreement		0.97	0.02	0.98	
Chance agreement		0.97	0.02	0.98	
Kappa		0.00			
Standard error		1.40			
95% Confidence interval (lower limit)		-2.75			
95% Confidence interval (upper limit)		2.75			

#### 6. Major Depression

	R1	R2			
		Mild	Moderate	Severe	
Mild		6	0	3	9
Moderate		0	0	1	1
Severe		2	0	18	20
		8	0	22	30
Exact agreement		0.80	0.02	0.82	
Chance agreement		0.57	0.02	0.59	
Kappa		0.56			
Standard error		0.17			
95% Confidence interval (lower limit)		0.22			
95% Confidence interval (upper limit)		0.89			



## 7. Dysthymia

	R1	R2			
		Mild	Moderate	Severe	
Mild		28	0	0	28
Moderate		1	1	0	2
Severe		0	0	0	0
		29	1	0	30
Exact agreement		0.97	0.02	0.98	
Chance agreement		0.90	0.05	0.95	
Kappa		0.65			
Standard error		0.49			
95% Confidence interval (lower limit)		-0.31			
95% Confidence interval (upper limit)		1.61			

## 8. Dysthymia Neurotic

	R1	R2			
		Mild	Moderate	Severe	
Mild		30	0	0	30
Moderate		0	0	0	0
Severe		0	0	0	0
		30	0	0	30
Exact agreement		1.00	0.00	1.00	
Chance agreement		1.00	0.00	1.00	
Kappa		#DIV/0!			
Standard error		#DIV/0!			
95% Confidence interval (lower limit)		#DIV/0!			
95% Confidence interval (upper limit)		#DIV/0!			

## 9. Eating Disorder – Anorexia

	R1	R2			
		Mild	Moderate	Severe	
Mild		30	0	0	30
Moderate		0	0	0	0
Severe		0	0	0	0
		30	0	0	30
Exact agreement		1.00	0.00	1.00	
Chance agreement		1.00	0.00	1.00	
Kappa		#DIV/0!			
Standard error		#DIV/0!			
95% Confidence interval (lower limit)		#DIV/0!			
95% Confidence interval (upper limit)		#DIV/0!			

## 10. Eating Disorder – Bulimia

R1	R2			
	Mild	Moderate	Severe	
Mild	30	0	0	30
Moderate	0	0	0	0
Severe	0	0	0	0
	30	0	0	30
Exact agreement	1.00	0.00	1.00	
Chance agreement	1.00	0.00	1.00	
Kappa	#DIV/0!			
Standard error	#DIV/0!			
95% Confidence interval (lower limit)	#DIV/0!			
95% Confidence interval (upper limit)	#DIV/0!			

## 11. Post Traumatic Stress Disorder

R1	R2			
	Mild	Moderate	Severe	
Mild	29	0	1	30
Moderate	0	0	0	0
Severe	0	0	0	0
	29	0	1	30
Exact agreement	0.97	0.00	0.97	
Chance agreement	0.97	0.00	0.97	
Kappa	0.00			
Standard error	0.98			
95% Confidence interval (lower limit)	-1.93			
95% Confidence interval (upper limit)	1.93			

## 12. Hypochondriasis

R1	R2			
	Mild	Moderate	Severe	
Mild	29	0	0	29
Moderate	0	0	0	0
Severe	1	0	0	1
	30	0	0	30
Exact agreement	0.97	0.00	0.97	
Chance agreement	0.97	0.00	0.97	
Kappa	0.00			
Standard error	0.98			
95% Confidence interval (lower limit)	-1.93			
95% Confidence interval (upper limit)	1.93			

### 13. Obsessive Compulsive Disorder

R1	R2			
	Mild	Moderate	Severe	
Mild	27	1	0	28
Moderate	1	1	0	2
Severe	0	0	0	0
	28	2	0	30
Exact agreement	0.93	0.03	0.97	
Chance agreement	0.88	0.06	0.94	
Kappa	0.46			
Standard error	0.53			
95% Confidence interval (lower limit)	-0.57			
95% Confidence interval (upper limit)	1.50			

### 14. Generalised Anxiety Disorder

R1	R2			
	Mild	Moderate	Severe	
Mild	20	1	4	25
Moderate	0	1	0	1
Severe	2	0	2	4
	22	2	6	30
Exact agreement	0.77	0.02	0.78	
Chance agreement	0.64	0.05	0.69	
Kappa	0.31			
Standard error	0.24			
95% Confidence interval (lower limit)	-0.17			
95% Confidence interval (upper limit)	0.78			

### 15. Panic Disorder

R1	R2			
	Mild	Moderate	Severe	
Mild	23	0	2	25
Moderate	0	0	0	0
Severe	1	0	4	5
	24	0	6	30
Exact agreement	0.90	0.00	0.90	
Chance agreement	0.70	0.00	0.70	
Kappa	0.67			
Standard error	0.18			
95% Confidence interval (lower limit)	0.31			
95% Confidence interval (upper limit)	1.02			



## 16. Phobic Disorder

R1	R2			
	Mild	Moderate	Severe	
Mild	26	1	0	27
Moderate	1	0	0	1
Severe	1	0	1	2
	28	1	1	30
Exact agreement	0.90	0.03	0.93	
Chance agreement	0.84	0.03	0.88	
Kappa	0.46			
Standard error	0.37			
95% Confidence interval (lower limit)	-0.25			
95% Confidence interval (upper limit)	1.18			

## 17. Substance Abuse – Drugs

R1	R2			
	Mild	Moderate	Severe	
Mild	20	1	1	22
Moderate	1	2	1	4
Severe	0	0	4	4
	21	3	6	30
Exact agreement	0.87	0.05	0.92	
Chance agreement	0.55	0.10	0.66	
Kappa	0.76			
Standard error	0.15			
95% Confidence interval (lower limit)	0.47			
95% Confidence interval (upper limit)	1.05			

## 18. Substance Abuse – Alcohol

R1	R2			
	Mild	Moderate	Severe	
Mild	21	0	1	22
Moderate	0	0	0	0
Severe	1	0	7	8
	22	0	8	30
Exact agreement	0.93	0.00	0.93	
Chance agreement	0.61	0.00	0.61	
Kappa	0.83			
Standard error	0.12			
95% Confidence interval (lower limit)	0.60			
95% Confidence interval (upper limit)	1.06			



## 19. Substance Abuse – Tobacco

	R1		R2	
	Mild	Moderate	Severe	
Mild	6	0	0	6
Moderate	0	17	1	18
Severe	0	0	6	6
	6	17	7	30
Exact agreement	0.97	0.02	0.98	
Chance agreement	0.43	0.24	0.67	
Kappa	0.95			
Standard error	0.07			
95% Confidence interval (lower limit)	0.81			
95% Confidence interval (upper limit)	1.09			

## 20. Dissociative Disorder

	Gold Standard			
	Mild	Moderate	Severe	
Mild	28	0	0	28
Moderate	0	1	0	1
Severe	1	0	0	1
	29	1	0	30
Exact agreement	0.97	0.00	0.97	
Chance agreement	0.90	0.03	0.94	
Kappa	0.48			
Standard error	0.51			
95% Confidence interval (lower limit)	-0.51			
95% Confidence interval (upper limit)	1.48			

## 21. Learning Difficulties

	Gold Standard			
	Mild	Moderate	Severe	
Mild	25	0	0	25
Moderate	2	3	0	5
Severe	0	0	0	0
	27	3	0	30
Exact agreement	0.93	0.03	0.97	
Chance agreement	0.77	0.12	0.88	
Kappa	0.71			
Standard error	0.28			
95% Confidence interval (lower limit)	0.16			
95% Confidence interval (upper limit)	1.26			

## 22. Attention Deficit disorder

Gold Standard				
	Mild	Moderate	Severe	
Mild	28	0	0	28
Moderate	0	1	0	1
Severe	0	0	1	1
	28	1	1	30
Exact agreement	1.00	0.00	1.00	
Chance agreement	0.87	0.03	0.91	
Kappa	1.00			
Standard error	0.00			
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

## 23. Autistic Spectrum Disorder

Gold Standard				
	Mild	Moderate	Severe	
Mild	29	0	0	29
Moderate	0	1	0	1
Severe	0	0	0	0
	29	1	0	30
Exact agreement	1.00	0.00	1.00	
Chance agreement	0.94	0.03	0.97	
Kappa	1.00			
Standard error	0.00			
95% Confidence interval (lower limit)	1.00			
95% Confidence interval (upper limit)	1.00			

## 24. Negative Syndrome

Gold Standard				
	Mild	Moderate	Severe	
Mild	18	3	0	21
Moderate	1	8	0	9
Severe	0	0	0	0
	19	11	0	30
Exact agreement	0.87	0.07	0.93	
Chance agreement	0.55	0.22	0.78	
Kappa	0.70			
Standard error	0.20			
95% Confidence interval (lower limit)	0.30			
95% Confidence interval (upper limit)	1.10			

## 25. Delusional Disorder

	Gold Standard			
	Mild	Moderate	Severe	
Mild	6	0	1	7
Moderate	0	1	0	1
Severe	0	0	22	22
	6	1	23	30
Exact agreement	0.97	0.00	0.97	
Chance agreement	0.61	0.03	0.64	
Kappa	0.91			
Standard error	0.09			
95% Confidence interval (lower limit)	0.73			
95% Confidence interval (upper limit)	1.09			

## Appendix 6

**Inter -rater Reliability: Results of the statistical analysis  
Agreement at the syndromal level.**

### 1. Organic

			Categories		
			0	1	2
MMO	Categories	0	57	7	3
		1	8	13	5
		2	1	1	4

Weighted Kappa = 0.52 95% C.I. (0.29, 0.75)

### 2. Schizophrenia

			Categories		
			0	1	2
MMO	Categories	0	28	1	3
		1	0	17	1
		2	2	5	42

Weighted Kappa = 0.82 95% C.I. (0.70, 0.93)

### 3. Mania ML

			Categories		
			0	1	2
MMO	Categories	0	84	4	0
		1	0	4	0
		2	0	0	5

Weighted Kappa = 0.86 95% C.I. (0.67, 1.00)

### 4. Mania MI

			Categories		
			0	1	2
MMO	Categories	0	92	0	0
		1	5	2	0
		2	0	0	0

Weighted Kappa = N/A

### 5. Mania MO

			Categories		
			0	1	2
MMO	Categories	0	64	17	3
		1	6	9	0
		2	0	0	0

Weighted Kappa = N/A

### 6. Major depression

			Categories		
			0	1	2
MMO	Categories	0	14	0	2
		1	0	0	0
		2	1	0	82

Weighted Kappa = N/A

### 7. Dysthymia

			Categories		
			0	1	2
MMO	Categories	0	99	0	0
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 8. Dysthymia Neurotic

			Categories		
			0	1	2
MMO	Categories	0	99	0	0
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 9. Eating Disorder -Anorexia

			Categories		
			0	1	2
MMO	Categories	0	93	6	0
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 10. Eating Disorder - Bulimia

			Categories		
			0	1	2
MMO	Categories	0	96	3	0
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 11. Post Traumatic Stress Disorder

			Categories		
			0	1	2
MMO	Categories	0	97	1	1
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 12. Hypochondriasis

			Categories		
			0	1	2
MMO	Categories	0	96	2	1
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 13. Obsessive Compulsive Disorder

			Categories		
			0	1	2
MMO	Categories	0	64	17	3
		1	6	9	0
		2	0	0	0

Weighted Kappa = N/A

### 14. Generalised anxiety

			Categories		
			0	1	2
MMO	Categories	0	63	0	10
		1	0	4	0
		2	3	0	9

Weighted Kappa = 0.54 95% C.I. (0.31, 0.72)

### 15. Panic disorder

			Categories		
			0	1	2
MMO	Categories	0	0	0	0
		1	1	0	51
		2	0	0	15

Weighted Kappa = N/A

**16. Phobic disorder**

			Categories		
			0	1	2
MMO	Categories	0	64	0	12
		1	3	4	1
		2	0	0	15

Weighted Kappa = 0.62 95% C.I. (0.44, 0.81)

**17. Personality disorder**

			Categories		
			0	1	2
MMO	Categories	0			
		1			
		2			

Weighted Kappa = N/A

**18. Substance Abuse - Drugs**

			Categories		
			0	1	2
MMO	Categories	0	90	1	0
		1	0	0	0
		2	1	1	6

Weighted Kappa = N/A

**19. Substance Abuse - Alcohol**

			Categories		
			0	1	2
MMO	Categories	0	70	0	0
		1	0	0	0
		2	3	0	26

Weighted Kappa = 0.95 95% C.I. (0.88, 1.00)

**20. Substance Abuse - Tobacco**

			Categories		
			0	1	2
MMO	Categories	0	32	0	0
		1	0	45	0
		2	1	2	19

Weighted Kappa = N/A



### 21. Dissociative disorder

			Categories		
			0	1	2
MMO	Categories	0	95	3	1
		1	0	0	0
		2	0	0	0

Weighted Kappa = N/A

### 22. Learning Difficulties

			Categories		
			0	1	2
MMO	Categories	0	78	5	1
		1	1	6	0
		2	2	4	2

Weighted Kappa = 0.58 95% C.I. (0.30, 0.86)

### 23. Attention Deficit Hyperactivity Disorder

			Categories		
			0	1	2
MMO	Categories	0	73	4	0
		1	6	15	1
		2	0	0	0

Weighted Kappa = N/A

### 24. Autism Spectrum Disorder

			Categories		
			0	1	2
MMO	Categories	0	84	3	0
		1	3	9	0
		2	0	0	0

Weighted Kappa = N/A

### 25. Negative syndrome

			Categories		
			0	1	2
MMO	Categories	0	64	3	0
		1	10	15	1
		2	0	3	3

Weighted Kappa = 0.66 95% C.I. (0.45, 0.88)

## 26. Delusional disorder

			Categories		
			0	1	2
MMO	Categories	0	46	3	2
		1	0	0	0
		2	3	2	43

Weighted Kappa = N/A

# Appendix 7

**Inter -rater Reliability: Results of the statistical analysis**

**Agreement at the case level (recode 1).**

### Recode 1

<u>Scores</u>	<u>Option</u>
0	No case
1 and 2	Suboptimal case
3, 4 and 5	Definite case

#### Case 1.

	<b>Gold Standard</b>			
	No case	Suboptimal case	Definite case	
No case	198	22	20	240
Suboptimal case	8	22	10	40
Definite case	2	1	47	50
	208	45	77	330
Exact agreement	0.81	0.06	0.87	
Chance agreement	0.51	0.11	0.62	
Kappa	0.66			
Standard error	0.05			
95% Confidence interval (lower limit)	0.56			
95% Confidence interval (upper limit)	0.75			

#### Case 2

	<b>Gold Standard</b>			
	No case	Suboptimal case	Definite case	
No case	212	13	0	225
Suboptimal case	9	24	3	36
Definite case	2	0	34	36
	223	37	37	297
Exact agreement	0.91	0.04	0.95	
Chance agreement	0.60	0.11	0.71	
Kappa	0.83			
Standard error	0.04			
95% Confidence interval (lower limit)	0.75			
95% Confidence interval (upper limit)	0.92			

### Case 3

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	136	11	0	147
Suboptimal case	8	38	3	49
Definite case	1	7	27	35
	145	56	30	231
Exact agreement	0.87	0.06	0.93	
Chance agreement	0.47	0.18	0.65	
Kappa	0.81			
Standard error	0.05			
95% Confidence interval (lower limit)	0.72			
5% Confidence interval (upper limit)	0.90			

### Case 4

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	174	7	3	184
Suboptimal case	7	25	0	32
Definite case	1	8	39	48
	182	40	42	264
Exact agreement	0.90	0.04	0.94	
Chance agreement	0.53	0.12	0.65	
Kappa	0.84			
Standard error	0.04			
95% Confidence interval (lower limit)	0.76			
95% Confidence interval (upper limit)	0.92			

### Case 5

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	193	2	1	196
Suboptimal case	3	4	0	7
Definite case	2	0	26	28
	198	6	27	231
Exact agreement	0.97	0.01	0.98	
Chance agreement	0.74	0.03	0.77	
Kappa	0.90			
Standard error	0.04			
95% Confidence interval (lower limit)	0.81			
95% Confidence interval (upper limit)	0.98			

**Case 6**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	146	13	3	162
<b>Suboptimal case</b>	6	12	2	20
<b>Definite case</b>	0	0	12	12
	152	25	17	194
<b>Exact agreement</b>	0.88	0.05	0.93	
<b>Chance agreement</b>	0.67	0.10	0.78	
<b>Kappa</b>	0.69			
<b>Standard error</b>	0.08			
<b>95% Confidence interval (lower limit)</b>	0.53			
<b>95% Confidence interval (upper limit)</b>	0.85			

**Case 7**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	180	9	0	189
<b>Suboptimal case</b>	9	19	0	28
<b>Definite case</b>	0	0	14	14
	189	28	14	231
<b>Exact agreement</b>	0.92	0.04	0.96	
<b>Chance agreement</b>	0.69	0.11	0.79	
<b>Kappa</b>	0.81			
<b>Standard error</b>	0.06			
<b>95% Confidence interval (lower limit)</b>	0.69			
<b>95% Confidence interval (upper limit)</b>	0.93			

**Case 8**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	150	18	7	175
<b>Suboptimal case</b>	3	13	5	21
<b>Definite case</b>	1	4	30	35
	154	35	42	231
<b>Exact agreement</b>	0.84	0.06	0.90	
<b>Chance agreement</b>	0.55	0.11	0.65	
<b>Kappa</b>	0.71			
<b>Standard error</b>	0.06			
<b>95% Confidence interval (lower limit)</b>	0.60			
<b>95% Confidence interval (upper limit)</b>	0.82			



**Case 9**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	140	0	0	140
<b>Suboptimal case</b>	3	7	0	10
<b>Definite case</b>	2	0	13	15
	145	7	13	165
<b>Exact agreement</b>	0.97	0.01	0.98	
<b>Chance agreement</b>	0.76	0.05	0.80	
<b>Kappa</b>	0.89			
<b>Standard error</b>	0.06			
<b>95% Confidence interval (lower limit)</b>	0.78			
<b>95% Confidence interval (upper limit)</b>	1.00			

**Case 10**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	106	2	0	108
<b>Suboptimal case</b>	0	16	0	16
<b>Definite case</b>	0	0	8	8
	106	18	8	132
<b>Exact agreement</b>	0.98	0.01	0.99	
<b>Chance agreement</b>	0.68	0.11	0.79	
<b>Kappa</b>	0.96			
<b>Standard error</b>	0.04			
<b>95% Confidence interval (lower limit)</b>	0.89			
<b>95% Confidence interval (upper limit)</b>	1.03			

**Case 11**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	120	10	2	132
<b>Suboptimal case</b>	11	22	3	36
<b>Definite case</b>	2	3	25	30
	133	35	30	198
<b>Exact agreement</b>	0.84	0.07	0.91	
<b>Chance agreement</b>	0.50	0.15	0.65	
<b>Kappa</b>	0.75			
<b>Standard error</b>	0.06			
<b>95% Confidence interval (lower limit)</b>	0.63			
<b>95% Confidence interval (upper limit)</b>	0.86			

**Case 12**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	147	2	1	150
<b>Suboptimal case</b>	3	26	1	30
<b>Definite case</b>	0	0	18	18
	150	28	20	198
<b>Exact agreement</b>	0.96	0.02	0.98	
<b>Chance agreement</b>	0.60	0.13	0.73	
<b>Kappa</b>	0.93			
<b>Standard error</b>	0.04			
<b>95% Confidence interval (lower limit)</b>	0.85			
<b>95% Confidence interval (upper limit)</b>	1.00			

**Case 13**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	126	12	2	140
<b>Suboptimal case</b>	0	10	0	10
<b>Definite case</b>	0	1	14	15
	126	23	16	165
<b>Exact a greement</b>	0.91	0.04	0.95	
<b>Chance agreement</b>	0.67	0.09	0.76	
<b>Kappa</b>	0.79			
<b>Standard error</b>	0.07			
<b>95% Confidence interval (lower limit)</b>	0.65			
<b>95% Confidence interval (upper limit)</b>	0.93			

**Case 14**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	185	1	0	186
<b>Suboptimal case</b>	0	0	0	0
<b>Definite case</b>	3	1	8	12
	188	2	8	198
<b>Exact agreement</b>	0.97	0.01	0.98	
<b>Chance agreement</b>	0.89	0.01	0.90	
<b>Kappa</b>	0.80			
<b>Standard error</b>	0.10			
<b>95% Confidence interval (lower limit)</b>	0.60			
<b>95% Confidence interval (upper limit)</b>	0.99			



**Case 15**

		Gold Standard		
		No case	Suboptimal case	Definite case
No case	144	1	0	145
Suboptimal case	1	4	0	5
Definite case	1	2	12	15
	146	7	12	165
Exact agreement	0.97	0.01	0.98	
Chance agreement	0.79	0.04	0.82	
Kappa	0.90			
Standard error	0.06			
95% Confidence interval (lower limit)	0.79			
95% Confidence interval (upper limit)	1.01			

# Appendix 8

**Inter -rater Reliability: Results of the statistical analysis  
Agreement at the case level (recode 2).**

### Recode 2

<u>Scores</u>	<u>Option</u>
0 and 1	No case
2	Suboptimal case
3, 4 and 5	Definite case

#### Case 1

	<b>Gold Standard</b>			
	No case	Suboptimal case	Definite case	
No case	209	11	20	240
Suboptimal case	8	22	10	40
Definite case	2	1	47	50
	219	34	77	330
Exact agreement	0.84	0.05	0.89	
Chance agreement	0.53	0.10	0.63	
Kappa	0.70			
Standard error	0.05			
95% Confidence interval (lower limit)	0.60			
95% Confidence interval (upper limit)	0.79			

#### Case 2

	<b>Gold Standard</b>			
	No case	Suboptimal case	Definite case	
No case	231	10	2	243
Suboptimal case	5	12	1	18
Definite case	2	0	34	36
	238	22	37	297
Exact agreement	0.93	0.03	0.96	
Chance agreement	0.68	0.06	0.74	
Kappa	0.85			
Standard error	0.04			
95% Confidence interval (lower limit)	0.76			
95% Confidence interval (upper limit)	0.93			

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**Case 3**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	175	4	3	182
Suboptimal case	0	14	0	14
Definite case	2	6	27	35
	177	24	30	231
Exact agreement	0.94	0.02	0.96	
Chance agreement	0.63	0.08	0.71	
Kappa	0.85			
Standard error	0.05			
95% Confidence interval (lower limit)	0.76			
95% Confidence interval (upper limit)	0.94			

**Case 4**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	175	6	3	184
Suboptimal case	7	25	0	32
Definite case	2	7	39	48
	184	38	42	264
Exact agreement	0.91	0.04	0.94	
Chance agreement	0.53	0.12	0.65	
Kappa	0.84			
Standard error	0.04			
95% Confidence interval (lower limit)	0.76			
95% Confidence interval (upper limit)	0.92			

**Case 5**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	194	1	1	196
Suboptimal case	6	1	0	7
Definite case	2	0	26	28
	202	2	27	231
Exact agreement	0.96	0.02	0.97	
Chance agreement	0.76	0.02	0.78	
Kappa	0.87			
Standard error	0.05			
95% Confidence interval (lower limit)	0.78			
95% Confidence interval (upper limit)	0.97			

**Case 6**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	151	12	5	168
Suboptimal case	11	7	0	18
Definite case	0	0	12	12
	162	19	17	198
Exact agreement	0.86	0.06	0.92	
Chance agreement	0.71	0.08	0.79	
Kappa	0.60			
Standard error	0.09			
95% Confidence interval (lower limit)	0.41			
95% Confidence interval (upper limit)	0.78			

**Case 7**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	184	5	0	189
Suboptimal case	11	17	0	28
Definite case	0	0	14	14
	195	22	14	231
Exact agreement	0.93	0.03	0.97	
Chance agreement	0.71	0.10	0.80	
Kappa	0.82			
Standard error	0.06			
95% Confidence interval (lower limit)	0.71			
95% Confidence interval (upper limit)	0.94			

**Case 8**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	150	18	7	175
Suboptimal case	3	13	5	21
Definite case	1	4	30	35
	154	35	42	231
Exact agreement	0.84	0.06	0.90	
Chance agreement	0.55	0.11	0.65	
Kappa	0.71			
Standard error	0.06			
95% Confidence interval (lower limit)	0.60			
95% Confidence interval (upper limit)	0.82			



**Case 9**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	150	0	0	150
<b>Suboptimal case</b>	0	0	0	0
<b>Definite case</b>	2	0	133	135
	152	0	133	285
<b>Exact agreement</b>	0.99	0.00	0.99	
<b>Chance agreement</b>	0.50	0.00	0.50	
<b>Kappa</b>	0.99			
<b>Standard error</b>	0.01			
<b>95% Confidence interval (lower limit)</b>	0.97			
<b>95% Confidence interval (upper limit)</b>	1.01			

**Case 10**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	108	0	0	108
<b>Suboptimal case</b>	3	13	0	16
<b>Definite case</b>	0	0	8	8
	111	13	8	132
<b>Exact agreement</b>	0.98	0.01	0.99	
<b>Chance agreement</b>	0.70	0.10	0.80	
<b>Kappa</b>	0.94			
<b>Standard error</b>	0.05			
<b>95% Confidence interval (lower limit)</b>	0.85			
<b>95% Confidence interval (upper limit)</b>	1.03			

**Case 11**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	148	15	5	168
<b>Suboptimal case</b>	0	0	0	0
<b>Definite case</b>	5	0	25	30
	153	15	30	198
<b>Exact agreement</b>	0.87	0.04	0.91	
<b>Chance agreement</b>	0.68	0.04	0.72	
<b>Kappa</b>	0.69			
<b>Standard error</b>	0.07			
<b>95% Confidence interval (lower limit)</b>	0.55			
<b>95% Confidence interval (upper limit)</b>	0.83			

**Case 12**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	164	3	1	168
<b>Suboptimal case</b>	1	10	1	12
<b>Definite case</b>	0	0	18	18
	165	13	20	198
<b>Exact agreement</b>	0.97	0.01	0.98	
<b>Chance agreement</b>	0.72	0.06	0.78	
<b>Kappa</b>	0.92			
<b>Standard error</b>	0.04			
<b>95% Confidence interval (lower limit)</b>	0.84			
<b>95% Confidence interval (upper limit)</b>	1.00			

**Case 13**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	133	5	2	140
<b>Suboptimal case</b>	3	7	0	10
<b>Definite case</b>	1	0	14	15
	137	12	16	165
<b>Exact agreement</b>	0.93	0.02	0.96	
<b>Chance agreement</b>	0.72	0.06	0.78	
<b>Kappa</b>	0.81			
<b>Standard error</b>	0.07			
<b>95% Confidence interval (lower limit)</b>	0.67			
<b>95% Confidence interval (upper limit)</b>	0.95			

**Case 14**

	<b>Gold Standard</b>			
	<b>No case</b>	<b>Suboptimal case</b>	<b>Definite case</b>	
<b>No case</b>	185	1	0	186
<b>Suboptimal case</b>	0	0	0	0
<b>Definite case</b>	3	1	8	12
	188	2	8	198
<b>Exact agreement</b>	0.97	0.01	0.98	
<b>Chance agreement</b>	0.89	0.01	0.90	
<b>Kappa</b>	0.80			
<b>Standard error</b>	0.10			
<b>95% Confidence interval (lower limit)</b>	0.60			
<b>95% Confidence interval (upper limit)</b>	0.99			

**Case 15**

	Gold Standard			
	No case	Suboptimal case	Definite case	
No case	148	2	0	150
Suboptimal case	0	0	0	0
Definite case	2	1	12	15
	150	3	12	165
Exact agreement	0.97	0.01	0.98	
Chance agreement	0.83	0.01	0.84	
Kappa	0.87			
Standard error	0.07			
95% Confidence interval (lower limit)	0.73			
95% Confidence interval (upper limit)	1.00			



# Appendix 9

## **Validity: Descriptive data**

**The descriptive data of the diagnosis generated by the clinicians and the assessment tools**

### Descriptive data

The analysis of the diagnoses generated by the clinicians and the tools and their ICD 10 codes

- **GMHAT/Full computer diagnosis Vs SCAN computer diagnosis**

The primary and secondary diagnosis generated by the ALL-AGECAT algorithm of the GMHAT assessment and the diagnoses generated by the CATEGO -10 algorithms of the SCAN assessment tool are described below.

**Table 1**

		<b>GMHAT computer</b>	<b>F code</b>	<b>SCAN computer</b>	<b>F code</b>
1	Primary	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>	Alcohol Dependence Syndrome	<b>F10.2</b>
	Secondary	Adjustment Disorder Post-traumatic stress disorder (probably - too low) Physical Problems	<b>F43.2</b> <b>F43.1</b>		
2	Primary	Mania - Elated :Severe	<b>F30.1</b>	<b>NO ICD 10 diagnosis</b> <b>DSM IV</b> - Mood disorder due to general medical condition with manic features-MDGMCM2	<b>NO ICD 10 diagnosis</b>
	Secondary				
3	Primary	Manic Episode	<b>F30.1</b>	Manic episode, unspecified  Bipolar disorder Current episode manic with Psychotic symptoms	<b>F30.9</b>  <b>F31.2</b>
	Secondary	General Anxiety Disorder  Physical Problems  Obsessive personality trait	<b>F41.1</b>		

		Dependent personality trait			
4	Primary	Major Depression :Moderate	<b>F32.1</b>	Alcohol dependence Syndrome  Recurrent depressive disorder	<b>F10.2</b>  <b>F33</b>
	Secondary	Substance Misuse - Alcohol dependence(Social damage)  Substance Misuse - Tobacco (Problem Smoking)  Paranoid personality trait  Obsessive personality trait	<b>F10.2</b>  <b>F17.1</b>		
5	Primary	Major Depression(Bipolar) (Recurrent ) :Moderate	<b>F31.3</b>	Concurrent & independent schizophrenic symptoms  Other nonorganic psychotic disorders	<b>F25</b>  <b>F28</b>
	Secondary	General Anxiety Disorder  Anxious personality disorder	<b>F41.1</b>  <b>F60.6</b>		
6	Primary	Paranoid Schizophrenia -	<b>F20.0</b>	Alcohol dependence syndrome  Paranoid Schizophrenia -  Schizoaffective disorder Manic type  Mania without psychotic symptoms	<b>F10.2</b>  <b>F20.0</b>  <b>F25.0</b>  <b>F30.1</b>
	Secondary	Major Depression (Recurrent) :Mild General Anxiety Disorder  Substance Misuse - Alcohol dependence (Physical & Social damage)  Eating Disorders (Bulimia : At risk )	<b>F33.0</b>  <b>F41.1</b>  <b>F10.2</b>  <b>F50.2</b>		

7	Primary	Major Depression Moderate	<b>F32.1</b>	Alcohol dependence syndrome  Mild Depressive episode	<b>F10.2</b>  <b>F 32.0</b>
	Secondary	Psychosexual disorder  Substance Misuse - Alcohol dependence (Social damage)  Schizoid personality disorder	<b>F52</b>  <b>F10.2</b>  <b>F60.1</b>		
8	Primary	Major Depression (Recurrent ) :Mild	<b>F33.0</b>	Concurrent & independent schizophrenic symptoms  Recurrent depressive disorder	<b>F25</b>  <b>F33</b>
	Secondary	Physical Problems  Psychosexual Disorder	<b>F52</b>		
9	Primary	Substance Misuse - Alcohol dependence	<b>F10.2</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Schizoid personality disorder	<b>F60.1</b>		
10	Primary	Major Depression (Bipolar) (Recurrent ) :Mild	<b>F31.3</b>	Opiate dependence syndrome  Cannabis dependence syndrome  Moderate depressive episode	<b>F11.2</b>  <b>F12.2</b>  <b>F32.1</b>
	Secondary	Obsessive Compulsive Disorder  Panic Disorder : Moderate  Substance Misuse Drugs ( Others, Cannabis, ) - Misuse a problem  Paranoid personality trait	<b>F42</b>  <b>F41.0</b>  <b>F19.1</b>		
11	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Undifferentiated Schizophrenia  Recurrent depressive	<b>F20.3</b>  <b>F33</b>

				disorder	
	Secondary	Major Depression (Recurrent ) :Moderate  Psychosexual Disorder  Paranoid personality disorder	<b>F33.1</b>  <b>F52</b>  <b>F60.0</b>		
12	Primary	Obsessive Compulsive Disorder	<b>F42.0</b>	Obsessive compulsive disorder, predominantly compulsive  Tobacco dependence	<b>F42.1</b>  <b>F17.2</b>
	Secondary	Physical Problems  Anxious personality disorder	<b>F60.6</b>		
13	Primary	Delusional Disorder (Past psychotic symptoms )	<b>F22.0</b>	Tobacco dependence	<b>F17.2</b>
	Secondary	Paranoid personality disorder	<b>F60.0</b>		
14	Primary	Major Depression (Recurrent ) :Mild	<b>F33.0</b>	Alcohol dependence syndrome  Other non organic psychotic disorder  Recurrent depressive disorder	<b>F10.2</b>  <b>F28</b>  <b>F33</b>
	Secondary	Paranoid Psychosis Resented: Mild  Panic Disorder : Severe  Physical Problems  Substance Misuse -Alcohol dependence  Anxious personality disorder  Dependent personality disorder	<b>F28</b>  <b>F41.0</b>  <b>F10.2</b>  <b>F60.6</b>  <b>F60.7</b>		
15	Primary	Manic Episode	<b>F30.1</b>	Cannabis dependence syndrome  Other non organic psychotic disorder	<b>F12.2</b>  <b>F28</b>

				Hypomania Non organic disorder of sleep walking	<b>F30.0</b> <b>F51.2</b>
	Secondary	Substance Misuse Drugs (Cannabis, )- Misuse a problem	<b>F12.1</b>		
16	Primary	Major Depression (Bipolar ) (Recurrent ) :Mild	<b>F31.3</b>	Generalised anxiety disorder	<b>F 41.1</b>
	Secondary	Panic Disorder : Moderate	<b>F41.0</b>		
17	Primary	Psychosexual Disorder	<b>F52</b>	<b>NO ICD 10</b> diagnosis <b>DSM IV-</b> Sexual dysfunction due to a general medical condition SXDGM C	
	Secondary	Substance Misuse - Tobacco (Problem Smoking)  Substance Misuse - Alcohol dependence	<b>F17.1</b>  <b>F10.2</b>		
18	Primary	Panic Disorder : Moderate	<b>F41.0</b>	Tobacco dependence	<b>F17.2</b>
	Secondary	Physical Problems Substance Misuse – Tobacco  Anxious personality disorder	<b>F17.1</b>  <b>F60.6</b>		
19	Primary	Schizoaffective disorder - depressive type	<b>F25.1</b>	Alcohol dependence syndrome  Other non organic psychotic disorder  Recurrent depressive disorder current episode moderate  Tobacco dependence	<b>F10.2</b>  <b>F28</b>  <b>F33.1</b>  <b>F17.2</b>
	Secondary	Panic Disorder :  Moderate Agoraphobia  Social phobia  Physical Problems	<b>F41.0</b>  <b>F40.0</b>  <b>F40.1</b>		

		Substance Misuse – Tobacco	<b>F17.1</b>		
20	Primary	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>	Paranoid Schizophrenia Tobacco dependence	<b>F20.0</b> <b>F17.2</b>
	Secondary	Physical Problems Psychosexual Disorder Substance Misuse – Tobacco	<b>F52</b> <b>F17.1</b>		
21	Primary	Major Depression (Recurrent ) :Mild	<b>F33.0</b>	Alcohol dependence syndrome  Recurrent depressive disorder current episode moderate with somatic syndrome	<b>F10.2</b> <b>F33.1</b>
	Secondary	Panic Disorder : Mild  Physical Problems  Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F41.0</b>  <b>F10.2</b>		
22	Primary	Panic Disorder : Moderate	<b>F41.0</b>	Cannabis dependence syndrome  Moderate depressive episode with somatic syndrome  Tobacco dependence	<b>F12.2</b> <b>F32.1</b> <b>F17.2</b>
	Secondary	Anxious personality disorder  Dependent personality disorder	<b>F60.6</b> <b>F60.7</b>		
23	Primary	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>	Alcohol dependence syndrome Tobacco dependence	<b>F10.2</b> <b>F17.2</b>
	Secondary	Obsessive personality disorder	<b>F60.5</b>		
24	Primary	Substance Misuse Drugs - Physical or Social damage	<b>F19.1</b>	Recurrent depressive disorder	<b>F33</b>
	Secondary	Substance Misuse – Tobacco	<b>F17.1</b>		

25	Primary	Major depression - Mild	<b>F32.0</b>	Undifferentiated Schizophrenia	<b>F20.3</b>
	Secondary	Obsessive Compulsive Disorder  Physical problems  Substance Misuse – Alcohol Dependence	<b>F42</b>   <b>F10.2</b>		
26	Primary	Substance Misuse – Tobacco	<b>F17.1</b>	Other non organic psychotic disorder Psychotic symptoms mood congruent  Tobacco dependence	<b>F28</b>  <b>F31.2</b>  <b>F17.2</b>
	Secondary	Obsessive personality trait  Past Eating Disorder – Anorexia			
27	Primary	Schizophrenia (moderate degree of certainty): Moderate	<b>F20.0</b>	Opiate dependence syndrome  Cannabis dependence syndrome  Cocaine dependence syndrome  Tobacco dependence	<b>F11.2</b>  <b>F12.2</b>  <b>F14.2</b>  <b>F17.2</b>
	Secondary	Substance Misuse Drugs (Cannabis, Cocaine, Opiates/Heroin, Ecstasy)- Physical or Social damage	<b>F19.1</b>		
28	Primary	Major Depression :Moderate	<b>F32.1</b>	Other non organic psychotic disorder  Agoraphobia without panic disorder  Specific phobias	<b>F28</b>  <b>F40.0</b>  <b>F40.2</b>
	Secondary	General Anxiety Disorder  Specific phobia  Psychosexual Disorder  Eating Disorders (Bulimia :	<b>F41.1</b>   <b>F40.2</b>  <b>F52</b>		



		At risk)	<b>F50.2</b>		
		Anxious personality disorder	<b>F60.6</b>		
29	Primary	Major Depression (Bipolar) (Recurrent) :Mild		Recurrent depressive disorder current episode moderate without somatic syndrome	<b>F33.1</b>
	Secondary	Panic Disorder : Moderate	<b>F41.0</b>		
30	Primary	Schizophrenia (high degree of certainty) : Severe	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Adjustment Disorder	<b>F43.2</b>		
		Substance Misuse - Tobacco (Problem Smoking)	<b>F17.1</b>		
31	Primary	NONE		Alcohol dependence syndrome	<b>F10.2</b>
				Cannabis dependence syndrome	<b>F12.2</b>
	Secondary				
32	Primary	Schizophrenia (high degree of certainty) : Severe	<b>F20.0</b>	Alcohol dependence syndrome	<b>F10.2</b>
				Paranoid Schizophrenia	<b>F20.0</b>
				Panic disorder severe	<b>F41.0</b>
				Tobacco dependence	<b>F17.2</b>
	Secondary	Panic Disorder : Moderate	<b>F41.0</b>		
		Specific phobia	<b>F40.1</b>		
		Social phobia			
		Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>		
		Paranoid personality disorder	<b>F60.0</b>		
33	Primary	Major Depression (Recurrent) :Moderate	<b>F33.1</b>	Recurrent depressive disorder current episode severe without psychotic syndrome	<b>F33.2</b>
				Obsessive compulsive disorder	<b>F42</b>

	Secondary	Panic Disorder : Moderate Psychosexual Disorder Eating Disorders (Anorexia) Eating Disorders (Bulimia) Obsessive personality disorder Past Eating Disorder – Bulimia	<b>F41.0</b> <b>F52</b> <b>F50.0</b> <b>F50.2</b> <b>F60.5</b>		
34	Primary	NONE		Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
35	Primary	Major Depression (Recurrent) :Mild	<b>F33.0</b>	Harmful use of cannabinoides  Recurrent depressive disorder  Tobacco dependence	<b>F12.1</b>  <b>F33</b>  <b>F17.2</b>
	Secondary	Physical Problems			
36	Primary	Major Depression (Recurrent) :Moderate	<b>F33.1</b>	Recurrent depressive disorder current episode moderate with somatic syndrome  Other non organic psychotic disorder	<b>F33.1</b>  <b>F28</b>
	Secondary	General Anxiety Disorder Social phobia Eating Disorder(Anorexia : at risk ) Anxious personality disorder Dependent personality disorder	<b>F41.1</b> <b>F40.1</b> <b>F50.0</b> <b>F60.6</b> <b>F60.7</b>		
37	Primary	General Anxiety Disorder	<b>F41.1</b>	Obsessive compulsive disorder predominantly obsessional	<b>F42.0</b>

	Secondary	Attention Deficit Disorder Substance Misuse – Tobacco Obsessive personality disorder	<b>F90</b> <b>F17.1</b> <b>F60.5</b>		
38	Primary	Delusional Disorder	<b>F22.0</b>	Other non organic psychotic disorder Agoraphobia Tobacco dependence	<b>F28</b> <b>F40.0</b> <b>F17.2</b>
	Secondary	Adjustment Disorder Substance Misuse – Tobacco	<b>F43.2</b> <b>F17.1</b>		
39	Primary	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>	Alcohol dependence syndrome Paranoid Schizophrenia Panic disorder moderate Tobacco dependence	<b>F10.2</b> <b>F20.0</b> <b>F41.0</b> <b>F17.2</b>
	Secondary	Physical Problems Substance Misuse - Alcohol dependence (Social damage)	<b>F10.1</b>		
40	Primary	DNA		DNA	
	Secondary				
41	Primary	Mania :Severe	<b>F30.1</b>	Bipolar disorder current episode manic with psychotic symptoms Specific phobias Panic disorder severe Tobacco dependence	<b>F31.2</b> <b>F40.2</b> <b>F41.0</b> <b>F17.2</b>
	Secondary	Obsessive personality disorder Anxious personality disorder	<b>F60.5</b> <b>F60.6</b>		
42	Primary	Major Depression (Recurrent) :Mild	<b>F33.0</b>	Alcohol dependence syndrome	<b>F10.2</b>
	Secondary	Panic Disorder : Moderate	<b>F41.0</b>		

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		Delusional disorder	<b>F22.0</b>		
		Agoraphobia	<b>F40.0</b>		
		Specific phobia	<b>F40.1</b>		
		Social phobia	<b>F40.2</b>		
		Psychosexual Disorder	<b>F52</b>		
		Learning Difficulty			
		Substance Misuse - Alcohol dependence(Physical & Social damage)	<b>F10.2</b>		
43	Primary	Mania ( Bipolar ) :Severe	<b>F31.1</b>	Alcohol dependence syndrome	<b>F10.2</b>
				Mania with psychotic symptoms mood incongruent	<b>F30.2</b>
				Tobacco dependence	<b>F17.2</b>
	Secondary	Substance Misuse – Tobacco	<b>F17.2</b>		
		Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>		
44	Primary	Psychosexual Disorder	<b>F52</b>	Mania with psychotic symptoms	<b>F30.2</b>
	Secondary				
45	Primary	Schizophrenia (moderate degree of certainty): Moderate	<b>F20.0</b>	Alcohol dependence syndrome	<b>F10.2</b>
				Stimulant dependence syndrome	<b>F15.2</b>
				Other non organic psychotic disorder	<b>F28</b>
				Tobacco dependence	<b>F17.2</b>
	Secondary	Substance Misuse Drugs - Physical or Social damage	<b>F15.1</b>		
		Substance Misuse - Alcohol dependence	<b>F10.2</b>		

46	Primary	Mania without psychotic symptoms	<b>F30.1</b>	Mania without psychotic symptoms	<b>F30.1</b>
	Secondary	Psychosexual Disorder	<b>F52</b>		
47	Primary	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
				Tobacco dependence	<b>F17.2</b>
	Secondary	Adjustment Disorder  Past Eating Disorder – Anorexia	<b>F43.2</b>		
48	Primary	Major Depression (Bipolar) ( Recurrent ) :Moderate	<b>F31.3</b>	Alcohol dependence syndrome	<b>F10.2</b>
				Mania without psychotic symptoms	<b>F30.1</b>
				Bipolar disorder current episode manic without psychotic symptoms	<b>F31.1</b>
				Specific phobias	<b>F40.2</b>
				Panic disorder severe	<b>F41.0</b>
				Sleepwalking	<b>F51.3</b>
	Secondary	General Anxiety Disorder with Panic attacks	<b>F41.1</b>		
		Substance Misuse - Alcohol dependence	<b>F10.2</b>		
49	Primary	Major Depression (Recurrent) :Moderate	<b>F33.1</b>	Severe depressive episode without psychotic symptoms	<b>F32.2</b>
				Depersonalisation derealisation syndrome	<b>F48.1</b>
	Secondary	General Anxiety Disorder with Panic attacks	<b>F41.1</b>		
50	Primary	Major Depression (Bipolar) ( Recurrent ) :Moderate	<b>F31.3</b>	Alcohol dependence syndrome	<b>F10.2</b>
				Bipolar disorder current episode manic without psychotic symptoms	<b>F31.1</b>
				Generalised anxiety	

				disorder	<b>F41.1</b>
	Secondary	Panic Disorder : Moderate Physical Problems Substance Misuse – Tobacco Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F41.0</b>  <b>F17.1</b> <b>F10.2</b>		
51	Primary	NONE		Cannabis dependence syndrome  Tobacco dependence	<b>F12.2</b>  <b>F17.2</b>
	Secondary				

- **GMHAT/Full computer diagnosis Vs GMHAT Clinician diagnosis**

The primary and secondary diagnosis generated by the ALL-AGECAT algorithm of the GMHAT assessment and the diagnoses generated by the clinician following the assessment with GMHAT assessment tool using if necessary any further information not available in the GMHAT assessment tool are described below.

**Table 2**

		<b>GMHAT clinician</b>	<b>F code</b>	<b>GMHAT computer</b>	<b>F code</b>
1	Primary	Mental and behavioural disorder due to alcohol misuse -amnesic syndrome	<b>F10.6</b>	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>
	Secondary			Adjustment Disorder	<b>F43.2</b>
				Post-traumatic stress disorder (probably - too low)	<b>F43.1</b>
				Physical Problems	
2	Primary	Mania without psychotic symptoms	<b>F30.1</b>	Mania - Elated :Severe	<b>F30.1</b>
	Secondary	Organic mood disorder	<b>F06.3</b>		
3	Primary	Mania with psychotic symptoms	<b>F30.2</b>	Manic Episode	<b>F30.1</b>
	Secondary			General Anxiety Disorder	<b>F41.1</b>
				Physical Problems	
				Obsessive personality trait	
				Dependent personality trait	
4	Primary	Mental and behavioural disorder due to alcohol misuse -Dependence Syndrome	<b>F10.2</b>	Major Depression :Moderate	<b>F32.1</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse - Psychotic disorder	<b>F10.5</b>	Substance Misuse - Alcohol dependence(Social damage)	<b>F10.2</b>
				Substance Misuse - Tobacco (Problem Smoking)	<b>F17.1</b>

				Paranoid personality trait Obsessive personality trait	
5	Primary	Residual Schizophrenia	F20.5	Major Depression(Bipolar) (Recurrent ) :Moderate	F31.3
	Secondary	Mixed Anxiety and Depressive disorder	F41.2	General Anxiety Disorder Anxious personality disorder	F41.1 F60.6
6	Primary	Undifferentiated Schizophrenia	F20.3	Paranoid Schizophrenia	F20.0
	Secondary			Major Depression (Recurrent) :Mild General Anxiety Disorder Substance Misuse - Alcohol dependence (Physical & Social damage) Eating Disorders (Bulimia : At risk	F33.0 F41.1 F10.2 F50.2
7	Primary	Mixed Anxiety and Depressive disorder	F41.2	Major Depression Moderate	F32.1
	Secondary	Mental and behavioural disorder due to alcohol misuse -Harmful use	F10.1	Psychosexual disorder Substance Misuse - Alcohol dependence (Social damage) Schizoid personality disorder	F52 F10.2 F60.1
8	Primary	Post Schizophrenic depression	F20.4	Major Depression (Recurrent ) :Mild	F33.0
	Secondary	Schizoaffective disorder - depressive episode	F25.1	Physical Problems Psychosexual Disorder	F52
9	Primary	Paranoid Schizophrenia	F20.0	Substance Misuse - Alcohol dependence	F10.2
	Secondary			Schizoid personality disorder	F60.1
10	Primary	Mental and behavioural disorder due to opiod dependence –depression	F11.8	Major Depression (Bipolar) (Recurrent ) :Mild	F31.3
	Secondary			Obsessive Compulsive Disorder	F42



				Panic Disorder : Moderate  Substance Misuse Drugs ( Others, Cannabis, ) - Misuse a problem  Paranoid personality trait	<b>F41.0</b>  <b>F19.1</b>
11	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary			Major Depression (Recurrent ) :Moderate  Psychosexual Disorder  Paranoid personality disorder	<b>F33.1</b>  <b>F52</b>  <b>F60.0</b>
12	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Obsessive Compulsive Disorder	<b>F42.0</b>
	Secondary	Obsessive compulsive disorder,	<b>F42.0</b>	Physical Problems  Anxious personality disorder	<b>F60.6</b>
13	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Delusional Disorder (Past psychotic symptoms )	<b>F22.0</b>
	Secondary			Paranoid personality disorder	<b>F60.0</b>
14	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Major Depression (Recurrent ) :Mild	<b>F33.0</b>
	Secondary	Post Schizophrenic depression	<b>F20.4</b>	Paranoid Psychosis Resented: Mild  Panic Disorder : Severe  Physical Problems  Substance Misuse -Alcohol dependence  Anxious personality disorder  Dependent personality disorder	<b>F28</b>  <b>F41.0</b>  <b>F10.2</b>  <b>F60.6</b>  <b>F60.7</b>
15	Primary	Acute psychotic episode	<b>F23</b>	Manic Episode	<b>F30.1</b>
	Secondary	?Manic episode	<b>F30</b>	Substance Misuse Drugs (Cannabis, )- Misuse a problem	<b>F12.1</b>
16	Primary	BPAD - Current episode severe depression without psychotic symptoms	<b>F31.4</b>	Major Depression (Bipolar ) (Recurrent ) :Mild	<b>F31.3</b>

	Secondary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	F33.2	Panic Disorder : Moderate	F41.0
17	Primary	BPAD - Current episode mania without psychotic symptoms	F31.1	Psychosexual Disorder	F52
	Secondary			Substance Misuse - Tobacco (Problem Smoking)	F17.1
				Substance Misuse - Alcohol dependence	F10.2
18	Primary	BPAD - Currently in remission	F31.7	Panic Disorder : Moderate	F41.0
	Secondary	Generalised anxiety disorder	F41.1	Physical Problems Substance Misuse – Tobacco	F17.1
				Anxious personality disorder	F60.6
19	Primary	Schizoaffective disorder - depressive type	F25.1	Schizoaffective disorder - depressive type	F25.1
	Secondary	Recurrent depressive disorder current episode severe with psychotic symptoms	F33.3	Panic Disorder :  Moderate Agoraphobia  Social phobia  Physical Problems Substance Misuse – Tobacco	F41.0  F40.0  F40.1  F17.1
20	Primary	Paranoid Schizophrenia	F20.0	Schizophrenia (high degree of certainty ): Severe	F20.0
	Secondary			Physical Problems  Psychosexual Disorder  Substance Misuse – Tobacco	  F52  F17.1
21	Primary	Moderate depressive episode	F32.1	Major Depression (Recurrent ) :Mild	F33.0
	Secondary	Mental and behavioural disorder due to alcohol misuse -dependence syndrome	F10.2	Panic Disorder : Mild  Physical Problems  Substance Misuse - Alcohol dependence (Physical & Social damage)	F41.0   F10.2

22	Primary	Moderate depressive episode	<b>F32.1</b>	Panic Disorder : Moderate	<b>F41.0</b>
	Secondary	Generalised anxiety disorder with panic disorder	<b>F41.1</b>	Anxious personality disorder	<b>F60.6</b>
		Emotionally Unstable Personality Disorder	<b>F60.3</b>	Dependent personality disorder	<b>F60.7</b>
23	Primary	Schizoaffective disorder depressive type	<b>F25.1</b>	Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F10.2</b>
	Secondary	Depressive episode with psychotic symptoms	<b>F32.3</b>	Obsessive personality disorder	<b>F60.5</b>
		Mental and behavioural disorder due to alcohol misuse -harmful use	<b>F10.2</b>		
24	Primary	Schizoaffective disorder - depressive type	<b>F25.1</b>	Substance Misuse Drugs - Physical or Social damage	<b>F19.1</b>
	Secondary			Substance Misuse – Tobacco	<b>F17.1</b>
25	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Major depression – Mild	<b>F32.0</b>
	Secondary			Obsessive Compulsive Disorder Physical problems	<b>F42</b>
				Substance Misuse – Alcohol Dependence	<b>F10.2</b>
26	Primary	BPAD - Current episode mania without psychotic symptoms in remission	<b>F31.7</b>	Substance Misuse – Tobacco	<b>F17.1</b>
	Secondary	Schizoaffective disorder - manic type	<b>F25.0</b>	Obsessive personality trait Past Eating Disorder – Anorexia	
27	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (moderate degree of certainty): Moderate	<b>F20.0</b>
	Secondary			Substance Misuse Drugs (Cannabis, Cocaine, Opiates/Heroin, Ecstasy)- Physical or Social damage	<b>F19.1</b>
28	Primary	Acute and transient psychotic disorder	<b>F23</b>	Major Depression :Moderate	<b>F32.1</b>

	Secondary	Severe depressive disorder with psychotic symptoms	<b>F32.3</b>	General Anxiety Disorder Specific phobia Psychosexual Disorder Eating Disorders (Bulimia : At risk) Anxious personality disorder	<b>F41.1</b> <b>F40.2</b> <b>F52</b> <b>F50.2</b> <b>F60.6</b>
29	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Major Depression (Bipolar) ( Recurrent ) :Mild	<b>F31.3</b>
	Secondary	BPAD - Current episode severe depression without psychotic symptoms	<b>F31.4</b>	Panic Disorder : Moderate	<b>F41.0</b>
30	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary			Adjustment Disorder Substance Misuse - Tobacco (Problem Smoking)	<b>F43.2</b> <b>F17.1</b>
31	Primary	Paranoid Schizophrenia	<b>F20.0</b>	NONE	
	Secondary				
32	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms  Mental and behavioural disorder due to alcohol misuse -dependence syndrome	<b>F33.3</b>  <b>F10.1</b>	Panic Disorder : Moderate Specific phobia Social phobia Substance Misuse - Alcohol dependence (Physical & Social damage) Paranoid personality disorder	<b>F41.0</b>  <b>F40.1</b> <b>F10.2</b> <b>F60.0</b>
33	Primary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Major Depression (Recurrent ) :Moderate	<b>F33.1</b>
	Secondary	Mixed anxiety and depressive disorder	<b>F41.2</b>	Panic Disorder : Moderate	<b>F41.0</b>

				Psychosexual Disorder Eating Disorders (Anorexia) Eating Disorders (Bulimia) Obsessive personality disorder Past Eating Disorder – Bulimia	<b>F52</b> <b>F50.0</b>  <b>F50.2</b>  <b>F60.5</b>
34	Primary	?Schizophrenia	<b>F20.0</b>	NONE	
	Secondary	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms	<b>F33.3</b>		
35	Primary	Severe depression without psychotic symptoms in partial recovery	<b>F32.2</b>	Major Depression (Recurrent) :Mild	<b>F33.0</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms Organic mood disorders secondary to MS	<b>F33.2</b>	Physical Problems	
36	Primary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Major Depression (Recurrent) :Moderate	<b>F33.1</b>
	Secondary	Anxious avoidant personality disorder Hypochondriasis Agoraphobia without panic disorders	<b>F60.6</b>  <b>F45.2</b>  <b>F40.0</b>	General Anxiety Disorder Social phobia Eating Disorder(Anorexia : at risk Anxious personality disorder Dependent personality disorder	<b>F41.1</b>  <b>F40.1</b>  <b>F50.0</b>  <b>F60.6</b>  <b>F60.7</b>
37	Primary	Mixed and other personality disorder	<b>F61</b>	General Anxiety Disorder	<b>F41.1</b>
	Secondary	Anxiety disorder Not otherwise specified Aspergers syndrome	<b>F41.9</b>  <b>F84.5</b>	Attention Deficit Disorder Substance Misuse – Tobacco Obsessive personality disorder	<b>F90</b>  <b>F17.1</b>  <b>F60.5</b>

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*Testing the psychometric properties of a standardised mental health assessment tool - The Global Mental Health Assessment Tool/Full version (GMHAT/Full) - Dr. Mahesh Mahabaleshwar Odiyoor*

38	Primary	Recurrent depressive disorder – unspecified	<b>F33.9</b>	Delusional Disorder	<b>F22.0</b>
	Secondary	BPAD - unspecified	<b>F31.9</b>	Adjustment Disorder	<b>F43.2</b>
				Substance Misuse – Tobacco	<b>F17.1</b>
39	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -dependence syndrome	<b>F10.2</b>	Physical Problems	<b>F10.1</b>
		Mental and behavioural disorder due to multiple substance misuse - harmful use	<b>F19.1</b>	Substance Misuse - Alcohol dependence (Social damage)	
40	Primary	DNA		DNA	
	Secondary				
41	Primary	BPAD - Current episode mania without psychotic symptoms in partial remission	<b>F31.1</b>	Mania :Severe	<b>F30.1</b>
	Secondary	Anankastic PD traits		Obsessive personality disorder	<b>F60.5</b>
		Anxious avoidant PD traits		Anxious personality disorder	<b>F60.6</b>
42	Primary	Delusional disorder	<b>F22.0</b>	Major Depression (Recurrent) :Mild	<b>F33.0</b>
	Secondary	Paranoid Schizophrenia	<b>F20.0</b>	Panic Disorder : Moderate	<b>F41.0</b>
				Delusional disorder	<b>F22.0</b>
				Agoraphobia	<b>F40.0</b>
				Specific phobia	<b>F40.1</b>
				Social phobia	<b>F40.2</b>
				Psychosexual Disorder	<b>F52</b>
				Learning Difficulty	
				Substance Misuse - Alcohol dependence(Physical & Social damage)	<b>F10.2</b>

43	Primary	BPAD - current episode hypomanic	<b>F31.0</b>	Mania ( Bipolar ) :Severe	<b>F31.1</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse - harmful use	<b>F10.1</b>	Substance Misuse – Tobacco Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F17.2</b> <b>F10.2</b>
44	Primary	Mania without psychotic symptoms	<b>F30.1</b>	Psychosexual Disorder	<b>F52</b>
	Secondary				
45	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (moderate degree of certainty); Moderate	<b>F20.0</b>
	Secondary	Mental and behavioural disorder due to stimulant misuse	<b>F15.1</b>	Substance Misuse Drugs - Physical or Social damage Substance Misuse - Alcohol dependence	<b>F15.1</b> <b>F10.2</b>
46	Primary	BPAD - currently in remission	<b>F31.7</b>	Mania without psychotic symptoms	<b>F30.1</b>
	Secondary			Psychosexual Disorder	<b>F52</b>
47	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Schizophrenia (high degree of certainty ): Severe	<b>F20.0</b>
	Secondary			Adjustment Disorder Past Eating Disorder – Anorexia	<b>F43.2</b>
48	Primary	BPAD - current episode mixed	<b>F31.6</b>	Major Depression (Bipolar) ( Recurrent ) :Moderate	<b>F31.3</b>
	Secondary	Generalised Anxiety disorder	<b>F41.1</b>	General Anxiety Disorder with Panic attacks Substance Misuse - Alcohol dependence	<b>F41.1</b> <b>F10.2</b>
49	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Major Depression (Recurrent) :Moderate	<b>F33.1</b>
	Secondary	Generalised Anxiety disorder with Panic disorder	<b>F41.1</b>	General Anxiety Disorder with Panic attacks	<b>F41.1</b>
50	Primary	Recurrent depressive disorder - current episode	<b>F33.2</b>	Major Depression (Bipolar) ( Recurrent ) :Moderate	<b>F31.3</b>

		severe depressive disorder without psychotic symptoms			
	Secondary	BPAD - current episode severe depressive disorder without psychotic symptoms BPAD - current episode mixed Generalised Anxiety disorder	<b>F31.4</b>  <b>F31.6</b> <b>F41.1</b>	Panic Disorder : Moderate  Physical Problems  Substance Misuse – Tobacco  Substance Misuse - Alcohol dependence (Physical & Social damage)	<b>F41.0</b>   <b>F17.1</b>  <b>F10.2</b>
51	Primary	Unspecified non organic psychosis	<b>F29</b>	NONE	
	Secondary	Schizoid personality with paranoid delusions	<b>F60.1</b>		



- **SCAN computer Vs SCAN clinician diagnosis**

The SCAN computer diagnosis generated by the CATEGO algorithm and the clinical diagnosis generated by the clinician following the completion of the assessment using if necessary any further information not available in the SCAN assessment tool are described below.

**Table 3**

		<b>SCAN clinician</b>	<b>F code</b>	<b>SCAN computer</b>	<b>F code</b>
1	Primary	Alcohol dependence - Amnesic Syndrome.	<b>F10.2</b>	Alcohol Dependence Syndrome	<b>F10.2</b>
	Secondary				
2	Primary	Mania without psychotic symptoms	<b>F30.1</b>	<b>NO ICD 10 diagnosis</b> <b>DSM IV</b> - Mood disorder due to general medical condition with manic features- MDGMC2	<b>NO ICD 10 diagnosis</b>
	Secondary	Organic mood disorder	<b>F06.3</b>		
3	Primary	Mania with psychotic symptoms	<b>F30.2</b>	Manic episode, unspecified  Bipolar disorder Current episode manic with Psychotic symptoms	<b>F30.9</b>  <b>F31.2</b>
	Secondary	Bipolar affective disorder - current manic with psychotic symptoms  Past Post natal depression  Past Substance dependence	<b>F31.2</b>		
4	Primary	Mental and behavioural disorder due to alcohol misuse -Dependence Syndrome	<b>F10.2</b>	Alcohol dependence Syndrome  Recurrent depressive disorder	<b>F10.2</b>  <b>F33</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse – Depression	<b>F10.8</b>		

5	Primary	Residual Schizophrenia	<b>F20.5</b>	Concurrent & independent schizophrenic symptoms  Other nonorganic psychotic disorders	<b>F25</b>  <b>F28</b>
	Secondary	Schizoaffective disorder - current episode mixed	<b>F25.2</b>		
6	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Alcohol dependence syndrome  Paranoid Schizophrenia –  Schizoaffective disorder Manic type  Mania without psychotic symptoms	<b>F10.2</b>  <b>F20.0</b>  <b>F25.0</b>  <b>F30.1</b>
	Secondary	Harmful use of alcohol	<b>F10.1</b>		
7	Primary	Mixed Anxiety and Depressive disorder	<b>F41.2</b>	Alcohol dependence syndrome  Mild Depressive episode	<b>F10.2</b>  <b>F 32.0</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -Harmful use	<b>F10.1</b>		
8	Primary	Residual Schizophrenia	<b>F20.5</b>	Concurrent & independent schizophrenic symptoms  Recurrent depressive disorder	<b>F25</b>  <b>F33</b>
	Secondary	Schizoaffective disorder - depressive episode	<b>F25.1</b>		
9	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
10	Primary	Moderate depressive episode	<b>F32.1</b>	Opiate dependence syndrome  Cannabis dependence syndrome  Moderate depressive episode	<b>F11.2</b>  <b>F12.2</b>  <b>F32.1</b>
	Secondary	Mental and behavioural disorder due to opiod dependence –depression	<b>F11.8</b>		
11	Primary	Residual Schizophrenia	<b>F20.5</b>	Undifferentiated Schizophrenia	<b>F20.3</b>

				Recurrent depressive disorder	<b>F33</b>
	Secondary				
12	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Obsessive compulsive disorder, predominantly compulsive  Tobacco dependence	<b>F42.1</b>  <b>F17.2</b>
	Secondary	Mental and behavioural disorder due to opiod dependence  Obsessive compulsive disorder	<b>F11.2</b>  <b>F42.0</b>		
13	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Tobacco dependence	<b>F17.2</b>
	Secondary				
14	Primary	Moderate depressive episode	<b>F32.1</b>	Alcohol dependence syndrome  Other non organic psychotic disorder  Recurrent depressive disorder	<b>F10.2</b>  <b>F28</b>  <b>F33</b>
	Secondary	Paranoid Schizophrenia	<b>F20.0</b>		
15	Primary	Manic Episode	<b>F30</b>	Cannabis dependence syndrome  Other non organic psychotic disorder  Hypomania  Non organic disorder of sleep walking	<b>F12.2</b>  <b>F28</b>  <b>F30.0</b>  <b>F51.2</b>
	Secondary	Acute polymorphic Psychotic episode	<b>FF23</b>		
16	Primary	BPAD - Current episode severe depression without psychotic symptoms	<b>F31.4</b>	Generalised anxiety disorder	<b>F 41.1</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>		
17	Primary	BPAD - Current episode	<b>F31.1</b>	<b>NO ICD 10 diagnosis</b>	

		mania without psychotic symptoms		<b>DSM IV- Sexual dysfunction due to a general medical condition SXDGMC</b>	
	Secondary				
18	Primary	Generalised anxiety disorder with panic attacks	<b>F41.1</b>	Tobacco dependence	<b>F17.2</b>
	Secondary				
19	Primary	Schizoaffective disorder - depressive type	<b>F25.1</b>	Alcohol dependence syndrome  Other non organic psychotic disorder  Recurrent depressive disorder current episode moderate  Tobacco dependence	<b>F10.2</b>  <b>F28</b>  <b>F33.1</b>  <b>F17.2</b>
	Secondary	Generalised anxiety disorder with panic attacks	<b>F41.1</b>		
20	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia  Tobacco dependence	<b>F20.0</b>  <b>F17.2</b>
	Secondary				
21	Primary	Recurrent depressive disorder - current moderate depressive episode	<b>F33.1</b>	Alcohol dependence syndrome  Recurrent depressive disorder current episode moderate with somatic syndrome	<b>F10.2</b>  <b>F33.1</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -dependence syndrome	<b>F10.2</b>		
22	Primary	Mixed anxiety and depressive episode	<b>F41.2</b>	Cannabis dependence syndrome  Moderate depressive episode with somatic syndrome  Tobacco dependence	<b>F12.2</b>  <b>F32.1</b>  <b>F17.2</b>
	Secondary				
23	Primary	Mental and behavioural	<b>F10.2</b>	Alcohol dependence syndrome	<b>F10.2</b>

		disorder due to alcohol misuse -dependence syndrome		Tobacco dependence	<b>F17.2</b>
	Secondary				
24	Primary	Moderate depressive episode	<b>F32.1</b>	Recurrent depressive disorder	<b>F33</b>
	Secondary				
25	Primary	Paranoid Schizophrenia with Post Schizophrenic depression	<b>F20.0</b>	Undifferentiated Schizophrenia	<b>F20.3</b>
	Secondary				
26	Primary	BPAD - Current episode mania without psychotic symptoms	<b>F31.1</b>	Other non organic psychotic disorder  Psychotic symptoms mood congruent  Tobacco dependence	<b>F28</b>  <b>F31.2</b>  <b>F17.2</b>
	Secondary	Schizoaffective disorder	<b>F25</b>		
27	Primary	Mental and behavioural disorder due to substance misuse -cannabis, cocaine, heroin	<b>F19.1</b>	Opiate dependence syndrome  Cannabis dependence syndrome  Cocaine dependence syndrome  Tobacco dependence	<b>F11.2</b>  <b>F12.2</b>  <b>F14.2</b>  <b>F17.2</b>
	Secondary	? Paranoid Schizophrenia	<b>F20.0</b>		
28	Primary	Severe depressive episode with psychotic symptoms	<b>F32.3</b>	Other non organic psychotic disorder  Agoraphobia without panic disorder  Specific phobias	<b>F28</b>  <b>F40.0</b>  <b>F40.2</b>
	Secondary				
29	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Recurrent depressive disorder current episode moderate without somatic syndrome	<b>F33.1</b>
	Secondary	Mixed anxiety and depressive episode	<b>F41.2</b>		

30	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Agoraphobia	<b>F40.0</b>		
31	Primary	Previous psychotic disorder. Currently symptom free.		Alcohol dependence syndrome Cannabis dependence syndrome	<b>F10.2</b> <b>F12.2</b>
	Secondary				
32	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Alcohol dependence syndrome Paranoid Schizophrenia Panic disorder severe Tobacco dependence	<b>F10.2</b> <b>F20.0</b> <b>F41.0</b> <b>F17.2</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse - harmful use  Generalised anxiety disorder with panic disorder	<b>F10.1</b>  <b>F41.1</b>		
33	Primary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Recurrent depressive disorder current episode severe without psychotic syndrome  Obsessive compulsive disorder	<b>F33.2</b>  <b>F42</b>
	Secondary	Generalised anxiety disorder	<b>F41.1</b>		
34	Primary	Paranoid Schizophrenia with negative symptoms	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Generalised anxiety disorder with panic disorder	<b>F41.1</b>		
35	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Harmful use of cannabinoids Recurrent depressive disorder Tobacco dependence	<b>F12.1</b> <b>F33</b> <b>F17.2</b>
	Secondary				
36	Primary	Recurrent depressive	<b>F33.2</b>	Recurrent depressive disorder	<b>F33.1</b>

		disorder - Current episode severe depression without psychotic symptoms		current episode moderate with somatic syndrome  Other non organic psychotic disorder	<b>F28</b>
	Secondary	Agoraphobia			
37	Primary	Aspergers syndrome	<b>F84.5</b>	Obsessive compulsive disorder predominantly obsessional	<b>F42.0</b>
	Secondary				
38	Primary	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms in partial remission	<b>F33.3</b>	Other non organic psychotic disorder  Agoraphobia  Tobacco dependence	<b>F28</b>  <b>F40.0</b>  <b>F17.2</b>
	Secondary	BPAD - Current episode severe depression with psychotic symptoms in partial remission	<b>F31.5</b>		
39	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Alcohol dependence syndrome  Paranoid Schizophrenia  Panic disorder moderate  Tobacco dependence	<b>F10.2</b>  <b>F20.0</b>  <b>F41.0</b>  <b>F17.2</b>
	Secondary				
40	Primary	DNA		DNA	
	Secondary				
41	Primary	BPAD - Current episode mania without psychotic symptoms in remission	<b>F31.1</b>	Bipolar disorder current episode manic with psychotic symptoms  Specific phobias  Panic disorder severe  Tobacco dependence	<b>F31.2</b>  <b>F40.2</b>  <b>F41.0</b>  <b>F17.2</b>
	Secondary				
42	Primary	Paranoid Schizophrenia with negative symptoms	<b>F20.0</b>	Alcohol dependence syndrome	<b>F10.2</b>

	Secondary	Mental and behavioural disorder due to alcohol misuse - harmful use	<b>F10.1</b>		
43	Primary	Mental and behavioural disorder due to alcohol misuse – dependence	<b>F10.2</b>	Alcohol dependence syndrome  Mania with psychotic symptoms mood incongruent  Tobacco dependence	<b>F10.2</b>  <b>F30.2</b>  <b>F17.2</b>
	Secondary	Cognitive problems secondary to alcohol  Hypomanic episode	<b>F10.6</b>  <b>F30.0</b>		
44	Primary	BPAD - current episode mania in partial recovery	<b>F31.1</b>	Mania with psychotic symptoms	<b>F30.2</b>
	Secondary				
45	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Alcohol dependence syndrome  Stimulant dependence syndrome  Other non organic psychotic disorder  Tobacco dependence	<b>F10.2</b>  <b>F15.2</b>  <b>F28</b>  <b>F17.2</b>
	Secondary	Mental and behavioural disorder due to stimulant misuse	<b>F15.1</b>		
46	Primary	BPAD - current episode hypomanic	<b>F31.0</b>	Mania without psychotic symptoms	<b>F30.1</b>
	Secondary				
47	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia  Tobacco dependence	<b>F20.0</b>  <b>F17.2</b>
	Secondary				
48	Primary	BPAD Current episode mixed	<b>F31.6</b>	Alcohol dependence syndrome  Mania without psychotic symptoms  Bipolar disorder current episode manic without psychotic symptoms	<b>F10.2</b>  <b>F30.1</b>  <b>F31.1</b>



				Specific phobias Panic disorder severe Sleepwalking	<b>F40.2</b> <b>F41.0</b> <b>F51.3</b>
	Secondary	Generalised Anxiety disorder	<b>F41.1</b>		
49	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Severe depressive episode without psychotic symptoms Depersonalisation derealisation syndrome	<b>F32.2</b> <b>F48.1</b>
	Secondary	Generalised Anxiety disorder	<b>F41.1</b>		
50	Primary	BPAD - current episode mixed	<b>F31.6</b>	Alcohol dependence syndrome Bipolar disorder current episode manic without psychotic symptoms Generalised anxiety disorder	<b>F10.2</b> <b>F31.1</b> <b>F41.1</b>
	Secondary	Recurrent depressive disorder - current episode severe depressive disorder without psychotic symptoms	<b>F33.2</b>		
51	Primary	Mental and behavioural problems due to substance misuse	<b>F12.1</b>	Cannabis dependence syndrome Tobacco dependence	<b>F12.2</b> <b>F17.2</b>
	Secondary				

- **GMHAT clinician diagnosis Vs SCAN clinician diagnosis**

The primary and secondary diagnosis generated by the clinicians following the completion of the assessment using if necessary any further information not available in the following assessment with GMHAT or the SCAN assessment tools are described below.

**Table .4**

		<b>GMHAT clinician</b>	<b>F code</b>	<b>SCAN clinician</b>	<b>F code</b>
1	Primary	Mental and behavioural disorder due to alcohol misuse -amnesic syndrome	<b>F10.6</b>	Alcohol dependence - Amnesic Syndrome.	<b>F10.2</b>
	Secondary				
2	Primary	Mania without psychotic symptoms	<b>F30.1</b>	Mania without psychotic symptoms	<b>F30.1</b>
	Secondary	Organic mood disorder	<b>F06.3</b>	Organic mood disorder	<b>F06.3</b>
3	Primary	Mania with psychotic symptoms	<b>F30.2</b>	Mania with psychotic symptoms	<b>F30.2</b>
	Secondary			Bipolar affective disorder - current manic with psychotic symptoms  Past Post natal depression  Past Substance dependence	<b>F31.2</b>
4	Primary	Mental and behavioural disorder due to alcohol misuse -Dependence Syndrome	<b>F10.2</b>	Mental and behavioural disorder due to alcohol misuse - Dependence Syndrome	<b>F10.2</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse - Psychotic disorder	<b>F10.5</b>	Mental and behavioural disorder due to alcohol misuse - Depression	<b>F10.8</b>
5	Primary	Residual Schizophrenia	<b>F20.5</b>	Residual Schizophrenia	<b>F20.5</b>
	Secondary	Mixed Anxiety and Depressive disorder	<b>F41.2</b>	Schizoaffective disorder - current episode mixed	<b>F25.2</b>
6	Primary	Undifferentiated Schizophrenia	<b>F20.3</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary			Harmful use of alcohol	<b>F10.1</b>

7	Primary	Mixed Anxiety and Depressive disorder	<b>F41.2</b>	Mixed Anxiety and Depressive disorder	<b>F41.2</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -Harmful use	<b>F10.1</b>	Mental and behavioural disorder due to alcohol misuse -Harmful use	<b>F10.1</b>
8	Primary	Post Schizophrenic depression	<b>F20.4</b>	Residual Schizophrenia	<b>F20.5</b>
	Secondary	Schizoaffective disorder - depressive episode	<b>F25.1</b>	Schizoaffective disorder - depressive episode	<b>F25.1</b>
9	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
10	Primary	Mental and behavioural disorder due to opiod dependence –depression	<b>F11.8</b>	Moderate depressive episode	<b>F32.1</b>
	Secondary			Mental and behavioural disorder due to opiod dependence – depression	<b>F11.8</b>
11	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Residual Schizophrenia	<b>F20.5</b>
	Secondary				
12	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Obsessive compulsive disorder,	<b>F42.0</b>	Mental and behavioural disorder due to opiod dependence Obsessive compulsive disorder	<b>F11.2</b>  <b>F42.0</b>
13	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
14	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Moderate depressive episode	<b>F32.1</b>
	Secondary	Post Schizophrenic depression	<b>F20.4</b>	Paranoid Schizophrenia	<b>F20.0</b>
15	Primary	Acute psychotic episode	<b>F23</b>	Manic Episode	<b>F30</b>
	Secondary	?Manic episode	<b>F30</b>	Acute polymorphic Psychotic episode	<b>FF23</b>
16	Primary	BPAD - Current episode severe depression without	<b>F31.4</b>	BPAD - Current episode severe depression without psychotic	<b>F31.4</b>

		psychotic symptoms		symptoms	
	Secondary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>
17	Primary	BPAD - Current episode mania without psychotic symptoms	<b>F31.1</b>	BPAD - Current episode mania without psychotic symptoms	<b>F31.1</b>
	Secondary				
18	Primary	BPAD - Currently in remission	<b>F31.7</b>	Generalised anxiety disorder with panic attacks	<b>F41.1</b>
	Secondary	Generalised anxiety disorder	<b>F41.1</b>		
19	Primary	Schizoaffective disorder - depressive type	<b>F25.1</b>	Schizoaffective disorder - depressive type	<b>F25.1</b>
	Secondary	Recurrent depressive disorder current episode severe with psychotic symptoms	<b>F33.3</b>	Generalised anxiety disorder with panic attacks	<b>F41.1</b>
20	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
21	Primary	Moderate depressive episode	<b>F32.1</b>	Recurrent depressive disorder - current moderate depressive episode	<b>F33.1</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -dependence syndrome	<b>F10.2</b>	Mental and behavioural disorder due to alcohol misuse - dependence syndrome	<b>F10.2</b>
22	Primary	Moderate depressive episode	<b>F32.1</b>	Mixed anxiety and depressive episode	<b>F41.2</b>
	Secondary	Generalised anxiety disorder with panic disorder  Emotionally Unstable Personality Disorder	<b>F41.1</b>  <b>F60.3</b>		
23	Primary	Schizoaffective disorder depressive type	<b>F25.1</b>	Mental and behavioural disorder due to alcohol misuse - dependence syndrome	<b>F10.2</b>

	Secondary	Depressive episode with psychotic symptoms  Mental and behavioural disorder due to alcohol misuse -harmful use	<b>F32.3</b>  <b>F10.2</b>		
24	Primary	Schizoaffective disorder - depressive type	<b>F25.1</b>	Moderate depressive episode	<b>F32.1</b>
	Secondary				
25	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia with Post Schizophrenic depression	<b>F20.0</b>
	Secondary				
26	Primary	BPAD - Current episode mania without psychotic symptoms in remission	<b>F31.7</b>	BPAD - Current episode mania without psychotic symptoms	<b>F31.1</b>
	Secondary	Schizoaffective disorder - manic type	<b>F25.0</b>	Schizoaffective disorder	<b>F25</b>
27	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Mental and behavioural disorder due to substance misuse - cannabis, cocaine, heroin	<b>F19.1</b>
	Secondary			? Paranoid Schizophrenia	<b>F20.0</b>
28	Primary	Acute and transient psychotic disorder	<b>F23</b>	Severe depressive episode with psychotic symptoms	<b>F32.3</b>
	Secondary	Severe depressive disorder with psychotic symptoms	<b>F32.3</b>		
29	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>
	Secondary	BPAD - Current episode severe depression without psychotic symptoms	<b>F31.4</b>	Mixed anxiety and depressive episode	<b>F41.2</b>
30	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary			Agoraphobia	<b>F40.0</b>
31	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Previous psychotic disorder. Currently symptom free.	
	Secondary				

32	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms  Mental and behavioural disorder due to alcohol misuse -dependence syndrome	<b>F33.3</b>  <b>F10.1</b>	Mental and behavioural disorder due to alcohol misuse - harmful use  Generalised anxiety disorder with panic disorder	<b>F10.1</b>  <b>F41.1</b>
33	Primary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>
	Secondary	Mixed anxiety and depressive disorder	<b>F41.2</b>	Generalised anxiety disorder	<b>F41.1</b>
34	Primary	?Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia with negative symptoms	<b>F20.0</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms	<b>F33.3</b>	Generalised anxiety disorder with panic disorder	<b>F41.1</b>
35	Primary	Severe depression without psychotic symptoms in partial recovery	<b>F32.2</b>	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>
	Secondary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms  Organic mood disorders secondary to MS	<b>F33.2</b>		
36	Primary	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>	Recurrent depressive disorder - Current episode severe depression without psychotic symptoms	<b>F33.2</b>
	Secondary	Anxious avoidant personality disorder  Hypochondriasis  Agoraphobia without panic disorders	<b>F60.6</b>  <b>F45.2</b>  <b>F40.0</b>	Agoraphobia	

37	Primary	Mixed and other personality disorder	<b>F61</b>	Aspergers syndrome	<b>F84.5</b>
	Secondary	Anxiety disorder Not otherwise specified  Aspergers syndrome	<b>F41.9</b>  <b>F84.5</b>		
38	Primary	Recurrent depressive disorder - unspecified	<b>F33.9</b>	Recurrent depressive disorder - Current episode severe depression with psychotic symptoms in partial remission	<b>F33.3</b>
	Secondary	BPAD - unspecified	<b>F31.9</b>	BPAD - Current episode severe depression with psychotic symptoms in partial remission	<b>F31.5</b>
39	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Mental and behavioural disorder due to alcohol misuse -dependence syndrome  Mental and behavioural disorder due to multiple substance misuse -harmful use	<b>F10.2</b>  <b>F19.1</b>		
40	Primary	DNA		DNA	
	Secondary				
41	Primary	BPAD - Current episode mania without psychotic symptoms in partial remission	<b>F31.1</b>	BPAD - Current episode mania without psychotic symptoms in remission	<b>F31.1</b>
	Secondary	Anankastic PD traits  Anxious avoidant PD traits			
42	Primary	Delusional disorder	<b>F22.0</b>	Paranoid Schizophrenia with negative symptoms	<b>F20.0</b>
	Secondary	Paranoid Schizophrenia	<b>F20.0</b>	Mental and behavioural disorder due to alcohol misuse - harmful use	<b>F10.1</b>
43	Primary	BPAD - current episode hypomanic	<b>F31.0</b>	Mental and behavioural disorder due to alcohol misuse – dependence	<b>F10.2</b>

	Secondary	Mental and behavioural disorder due to alcohol misuse - harmful use	<b>F10.1</b>	Cognitive problems secondary to alcohol Hypomanic episode	<b>F10.6</b> <b>F30.0</b>
44	Primary	Mania without psychotic symptoms	<b>F30.1</b>	BPAD - current episode mania in partial recovery	<b>F31.1</b>
	Secondary				
45	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary	Mental and behavioural disorder due to stimulant misuse	<b>F15.1</b>	Mental and behavioural disorder due to stimulant misuse	<b>F15.1</b>
46	Primary	BPAD - currently in remission	<b>F31.7</b>	BPAD - current episode hypomanic	<b>F31.0</b>
	Secondary				
47	Primary	Paranoid Schizophrenia	<b>F20.0</b>	Paranoid Schizophrenia	<b>F20.0</b>
	Secondary				
48	Primary	BPAD - current episode mixed	<b>F31.6</b>	BPAD Current episode mixed	<b>F31.6</b>
	Secondary	Generalised Anxiety disorder	<b>F41.1</b>	Generalised Anxiety disorder	<b>F41.1</b>
49	Primary	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>	Severe depressive disorder without psychotic symptoms	<b>F32.2</b>
	Secondary	Generalised Anxiety disorder with Panic disorder	<b>F41.1</b>	Generalised Anxiety disorder	<b>F41.1</b>
50	Primary	Recurrent depressive disorder - current episode severe depressive disorder without psychotic symptoms	<b>F33.2</b>	BPAD - current episode mixed	<b>F31.6</b>
	Secondary	BPAD - current episode severe depressive disorder without psychotic symptoms  BPAD - current episode mixed  Generalised Anxiety disorder	<b>F31.4</b>  <b>F31.6</b>  <b>F41.1</b>	Recurrent depressive disorder - current episode severe depressive disorder without psychotic symptoms	<b>F33.2</b>



51	Primary	Unspecified non organic psychosis	F29	Mental and behavioural problems due to substance misuse	F12.1
	Secondary	Schizoid personality with paranoid delusions	F60.1		